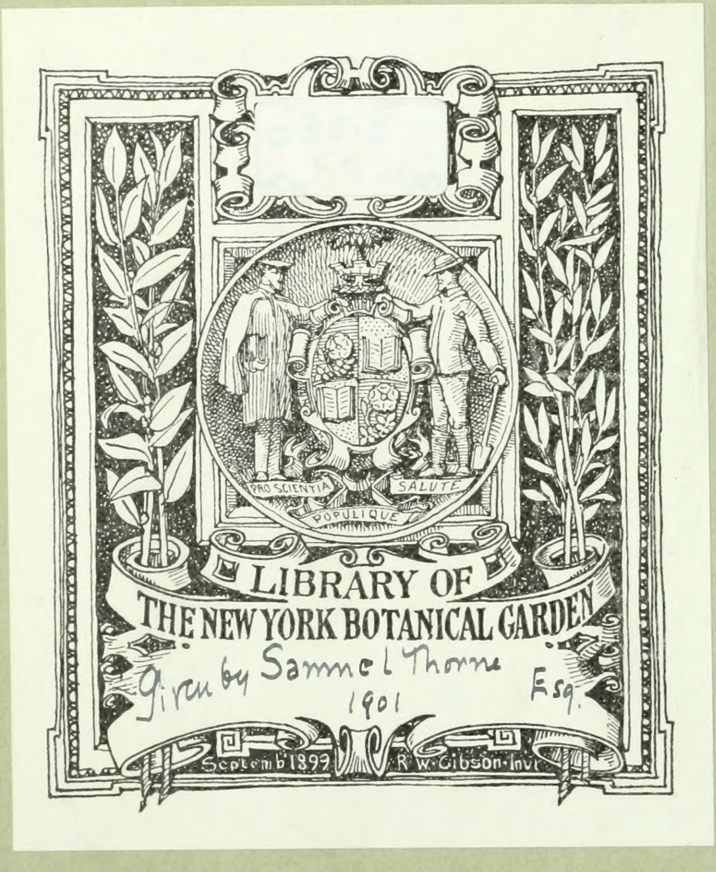

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THE FARMER'S MAGAZINE.

JULY, 1858.

PLATE I.

PORTRAIT OF MR. WILLIAM CROSSKILL.

PLATE II.

A SHORTHORN OX.

THE PROPERTY OF MR. E. WORTLEY, OF RIDLINGTON, RUTLAND.

MR. WILLIAM CROSSKILL.

The little town of Beverley, in the East Riding of Yorkshire, has lately been heard of in every quarter of the globe—chiefly from the activity and enterprise of the well-known agricultural implement maker whose portrait appears this month in the *Farmer's Magazine*.

Mr. William Crosskill owes his position in life entirely to his own industry and perseverance. The son of a whitesmith in a small country town, left fatherless at the early age of thirteen, with a widowed mother and younger brothers and sisters to provide for, his early struggles were well calculated to call forth all his energy of character. By hard work, he succeeded in gradually extending the little workshop left by his father. As soon as practicable, he exchanged it for a larger one, and erected an iron foundry, to blow the furnace of which, and to drive a few simple tools, he fixed a steam engine—at a period when such a machine was considered a prodigy in a remote agricultural district. The establishment increased rapidly, and became well known as an agricultural implement manufactory; until the invention and successful introduction of the celebrated clod-crusher spread Mr. Crosskill's name and fame far and wide, as one who had rendered essential service to the cause of agricultural progress.

The difficulties and obstacles that had to be overcome in bringing this implement into use, would afford materials for a striking contrast between the manner in which agricultural improvements were received twenty years ago, and the avidity with which they are now-a-days seized upon and turned to account. In the first year after the invention of the clod-crusher, only three were manufactured; and in order to bring them into use, two of these had to be given away. But the obvious excellence of the implement, whenever it was tried, could not fail to vanquish all prejudice. The yearly sales increased rapidly; and, after awarding prizes to the implement at their annual exhibitions in 1843 and 1844, the Royal Agricultural Society of England in 1846 stamped it with the highest mark of their approval, by passing a unanimous resolution of Council, to the effect that the Gold Medal of the Society should be presented to Mr. Crosskill for his valuable invention. Since that time, its introduction has been rapid and complete. A clod-crusher is now an indispensable requisite on every well-managed farm, both on light and heavy land, as its utility in rolling young wheat, fully equals its efficiency in pulverizing the roughest clods.

Mr. Crosskill has always been foremost amongst the advocates of the use of machinery for agricultural purposes. In the year 1841 he proposed to apply the steam engine to drive thrashing machinery; and at the meeting of the Yorkshire Agricultural Society at Hull, in that year, he exhibited a combined thrashing machine driven by a portable steam engine. Agriculturists were not, however, at that time, prepared for such an innovation. The scheme was unfavourably regarded; and it was not until seven or eight years subsequent that agricultural societies offered any encouragement for the exhibition of portable steam engines, or that such engines were to any extent brought into practical use.

Another object which for many years engaged Mr. Crosskill's attention was the application of machinery to the manufacture of wooden wheels. He arranged and constructed on his own works a complete set of machinery for this purpose. By means of these, the wheels are not only made at less cost, but are more accurately fitted, and therefore more durable, than those put together by hand-labour. By keeping a very large stock of timber, and using nothing but the driest and soundest materials, Mr. Crosskill has obtained a well-deserved reputation for his patent wheels, while the demand for them is still increasing.

Mr. Crosskill is further justly entitled to credit for his sagacity in discerning the uses to which a small railway might be applied in agricultural operations. In 1847 he brought out his portable railway, by means of which two men can easily lay a road that will carry fifteen to twenty cwt. over the softest land, move it about where necessary, and take it up when done with. The large quantity of the portable railway that has since been sold, proves the high estimation in which it is held by the owners and occupiers of strong soils, who are often compelled by the seasons to draw turnips from or lead manure to their land, when it is in too soft a state to bear the pressure of cart-wheels upon it.

At the Great Exhibition of 1851, the American reaping machine attracted Mr. Crosskill's attention. With characteristic ardour, he set to work to aid the introduction of machinery into the English harvest-field; and, after encountering and successfully overcoming more than the usual number of difficulties with which the introduction of new agricultural machinery is too often beset, he had the gratification of seeing his improved reaping machine fully recognized as a standard implement.

Without further adverting in detail to the different branches of machinery that have engaged Mr. Crosskill's attention, enough has been stated to show that his claims are of a very high order. The extensive manufactory which he has built near the town of Beverley, occupying upwards of six acres of ground, and containing the most improved machinery for executing every kind of work, either in wood or iron, is an enduring monument of what may be accomplished by a man of industry, skill, and perseverance.

Like his most successful contemporaries in business, Mr. Crosskill has received his full share of the medals, prizes, and commendations which our agricultural societies take pleasure in bestowing upon the exhibitors at their shows. Amongst his large collection of medals, he may especially feel proud of the gold medal of the Royal Agricultural Society of England, the Council medal of the Great Exhibition of All Nations, and the gold medal of the Universal Exhibition in Paris.

In the year 1852, when the artizans of most of the great engineering establishments in Lancashire and Yorkshire were at variance with their employers, and had resorted to the desperate and distressing expedient of a general strike, Mr. Crosskill's workmen showed their appreciation of his conduct as an employer by entering into a subscription to present him with a handsome timepiece, as a testimonial of their regard and esteem. The value of the gift was greatly enhanced by the remarkable contrast shown in such a presentation, to the relations which at that time existed between many other employers and their workmen.

Mr. Crosskill retired from business in the year 1855. The Agricultural Implement Works at Beverley have since been carried on under the management of his two sons, who had assisted him for some time previously. In his own neighbourhood he has for many years been known as an active and determined politician; has for a long time filled the office of alderman for the borough of Beverley; and taken a prominent part in the election of members to represent the town in Parliament. Shortly after his retirement from business, he received from Government a valuable appointment, in recognition of his political services. All who know him will, doubtless, concur in the wish that he may live long to enjoy the reward of his active exertions—labours, the more important of which have been the rather for public good than party purpose.

PLATE II.

A SHORTHORN OX.

THE PROPERTY OF MR. E. WORTLEY, OF RIDLINGTON, RUTLAND.

This ox, bred by Mr. Wortley, is by a son of Father Mathew, a bull bred by Lord Spencer, and bought at the Wiseton sale by Mr. Syson, of Erpingham. The dam, bred by Mr. Wortley himself, is well descended, but has no registered pedigree.

At the Oakham Show in December, 1856, this ox took the first prize of 7 sovs. as the best steer under three years of age.

At the same show of the following year he was awarded the first prize of 15 sovs., as the best ox or steer of any breed or weight under five years old—open to all England.

At the Leicester Show he carried off another open first prize of 15 sovs., as the best ox under five years old, of any breed.

At the Smithfield Club the following week, he took the first prize of 25 sovs., as the best shorthorn ox, with the silver medal for the breeder, and the Gold Medal as the best ox in the yard.

He was thought by some good judges to be the best beast ever sent to the Baker-street Bazaar. He had extraordinary length and breadth, with most beautiful symmetry and compactness of form. His chine and ribs were most wonderfully extended; his immense weight of flesh most evenly laid on, and of first-class quality. His head was very handsome and bone fine. His girth was nine feet and his length six feet. His dead weight was 206 stone, with 22 stone of loose fat. His age was 3 years 11 months and 6 days, when slaughtered by Mr. Smith of Hampstead.

Mr. Wortley, the breeder and feeder of this famous beast, had never before entered one at the Smithfield Club. His success was so altogether extraordinary; for with the two shorthorns he sent up last Christmas, he took the Gold Medal with the ox, and the third prize, in an exceedingly good class, with his cow.

Mr. Wortley, who farms under Lord Gainsborough, has been a breeder of shorthorns on a limited scale for the last fourteen or fifteen years. His stock are chiefly from the herds of Mr. Baker of Cottesmore, the late Mr. Samuel Cheetham, and the Messrs. Chapman of Whitwell.

Although so entirely unknown in London, Mr. Wortley has exhibited at the local meetings with much success, having in the last ten years taken no less than forty premiums for shorthorns. Notwithstanding this, his average does not exceed the raising of more than six calves a year.

This is, we believe, the first Gold Medal steer from the little county of Rutland. Mr. Baker once won it with a heifer, so that the honours so far are well divided.

PULPING FOOD.

BY CUTHBERT W. JOHNSON, ESQ., F.R.S.

The best state of the mechanical division of food has recently excited considerable inquiry. The pulping of roots has been strongly urged upon the attention of the stock-owner. The asserted advantages of this system of finely dividing the food of animals would seem to arise from either the masticating labour of the animal being saved, or from the food by this mode of division being more completely digested. It will not, then, be a useless labour if we briefly consider these two asserted advantages of well dividing our food, and glance at certain errors which are to be avoided in giving a fair trial to the pulping, or any other system having the same objects.

The importance of the *form* in which the food is administered to cattle did not escape the attention of Dr. Lyon Playfair, when he was, some time since, addressing himself to the very important subject of the application of physiology to the rearing and feeding of cattle (*Jour. Roy. Ag. Soc.*, vol. iv., p. 234). He very clearly perceived that the form in which food is given to cattle is far indeed from being a matter of indifference. If, as he remarked, the food be in a state in which it is either difficult for the animal to attain, or difficult to masticate when obtained, much of it will be lost in the production of force necessary to adapt it for the organs of digestion. The cutting of hay and straw to chaff is unwittingly done, in fact, with a view to prevent any unnecessary expenditure of force. Less mastication being necessary, consequently less of the tissues of the body are expended in grinding down the food.

Then, as to the better digestion of mechanically-divided food, there is, I take it, no doubt of this fact as a general rule; and the reason of this was thus given to me by one of the Professors of Guy's and St. Thomas's Hospitals, to whom I had propounded the question: "It is a well-known fact, both from experiments and observation, that the food is retained in the stomach for only a certain time, and that, if the substances it contains are not in a state of division fine enough to be acted upon by the gastric juice in that period, they are passed on to the intestines, where the nutritive portions of *only the digested* food are absorbed into the system. The advantages, I conceive, therefore, of this pulping machine over machines which only slice the roots is, that it imitates more the operation effected on the food by the molar teeth. Food which is only cut into pieces does not, of course, expose so great a surface to be acted upon by the gastric fluid; and thus the nutritive effect of the root is, of course, increased by such a machine; for the whole of the food is by this means subjected to the dissolving power of the gastric juice."

The pulping machine, however, is, after all, only to be regarded as an aid to mastication: it cannot render it unnecessary. We must ever be very cautious in arriving at such conclusions; for other essential operations of animal life are here involved. Lyon Playfair alluded carefully to some of these in his first lecture. To give only one instance: The use of saliva, according to Liebig, is to form a receptacle for air, or oxygen, by which means it is mixed with the food, and carried to the stomach. The use of mastication, then, is not only to comminute the food, but also to mix it with air, or with saliva. "We find," continued Dr. Playfair, "that a larger size of chaff is given to those animals which chew the cud, than to those which do not." One great object of rumination is to obtain a repeated supply of oxygen to the food. Hence in our ordinary practice we cut the hay-chaff one inch in length for oxen, half-an-inch for sheep, and only a quarter of an inch for horses. The two first being ruminating animals, require it longer than the horse. I am aware that many farmers entertain the opinion that cutting hay is only of use in the facilities which it affords for mixing with the inferior hay, straw, or other food (and the pulping system is commonly supported by a similar argument). Straw, in fact, except when new, is not a very nutritious food; for we find a great part of it unchanged in the fæces of the animal. Its principal use perhaps is to give *bulk* to the food. Even in the case of turnips, a food of considerable bulk, straw is necessary, because these roots contain ninety per cent. of water, which becomes soon separated. Thus it is, that cattle fed upon turnips voluntarily take two or three pounds of straw daily, or as much as will serve to give the necessary bulk to the food. This would appear to be the reason for giving straw with turnips and other kinds of succulent food. The common expression of the farmer is, that straw "corrects their watery nature," which means, increases their bulk, when their water has left them and reduced their volume. Rumination is requisite, in order to keep an ox in health. A little hay or straw is accordingly necessory to enable it to chew the cud. We know a case in which barley-meal and boiled potatoes were given to cows, without hay or straw. Constipation resulted, and the cattle nearly perished from the ignorance of the feeder. From these considerations, Playfair concluded that a greater return will be made by food partly but not too much mechanically divided.

The difficulty of attaining anything like minute accuracy in experiments upon digestion is, unfortunately, very considerable; the inquiry involving not only the varying degree of rapidity, but also the completeness of the digestion of different substances. It is one of the many obstacles in this case, that the mysterious process of digestion is hidden from our eyes. We have only one recorded case in which (owing to an opening in the stomach caused by a wound) the digestive process in a man's stomach could be actually observed. This was the case of a robust Canadian, St. Martin. Dr. Beaumont took advantage of this, to subject to actual experiments in the patient's stomach a variety of substances. The following were some of the results obtained by him. In this table, the time taken for complete digestion is given in minutes:—

Boiled rice	60	Boiled parsnips	150
Raw mellow apples	90	—— potatoes	150
Barley soup	90	Raw cabbage	150
Boiled sago	95	Raw sour apples	170
Boiled barley	120	Boiled apple dumpling	180
Boiled tapioca	120	Indian corn bread	195
Raw cabbage, with vinegar	120	Fresh wheaten bread	210
Boiled beans	150	Beets, boiled	225

The inquiry was not confined to vegetable substances—animal food was also experimented upon, some of the results of which I subjoin, although these are not strictly connected with the subject of this paper. (*Dr Bushman's Medicine*, p. 294):—

Tripe, soused	60	Pork, broiled	195
Liver, broiled	120	—— steaks	195
Boiled milk	120	Mutton, roasted	195
Raw milk	135	Melted butter	210
Broiled lamb	150	Beef, lean, roasted	210
Boiled beef	165	———— fried	240
Roast do., underdone	180	Calf's heart, fried	240
Fresh salted pork	180	Veal, broiled	240
Stewed ditto	180	—— fried	270
Mutton, boiled	180	Pork, roasted	315
——— broiled	180		

With regard to the degree, or completeness in which the same food in different states is digested, the evidence seems to incline pretty well all the same way, viz., that the more finely the food is divided, the greater is the portion of nutritive matter abstracted from it by the stomach. The process of *cooking*, by rendering the food more readily divisible, probably operates also in a similar direction. The operation of mastication—the grinding action in the gizzard of a bird—the bruising of corn for our live stock—the gruel and other thin farinaceous food given to invalids—all seem to lead us to the same conclusion. One of the common results of *overfeeding* shows, however, that by no method of division can loss in this way be avoided, for in such cases portions of undigested food are voided by the subject, often in considerable quantities.

This voidance of food by cattle did not escape the attention of Sprengel. He long since remarked, in a valuable paper on animal manures, so well translated from the German by James Hudson, the secretary of the Royal Agricultural Society (*Jour. Royal Agricultural Society*, vol. i., p. 459.), * that it is sometimes maintained that the excrements of cattle fed on scalded fodder are of superior quality to those of stock fed in the ordinary way. This, however, adds the German chemist, is scarcely possible. They must, on the contrary, with equal quantity and quality of food, be inferior; for by the process of scalding, the materials are so prepared for the digestive organs as more easily to lend their best portions to them. For this reason we give cows a less quantity of scalded fodder than of that which has not been so prepared. The excrements of oxen fed on scalded food come sooner into effective operation, since the woody fibre, and the hardened vegetable portions of the food, are softened by the process of scalding, and consequently when in the state of excrement are decomposed more rapidly. On account of this quicker effect, the excrement of cattle fed on scalded food is sometimes supposed to be the best, although it is not really so.

The solid excrements of cattle has been examined by several chemists — in all cases vegetable fibre, and other organic matters were found to be present. Einhof found in 1,000 parts of the solid excrements of cattle fed on spurry.

Water	717	pints
Green mucous matter	93	„
Vegetable fibre	156	„

Similar remarks have been made in chemical examinations of human fæces. These, said Way (*Jour. Roy. Ag. Soc.* vol. xv., p. 141) consist partly of the *undigested* food which has been taken in excess over the necessities of the stomach and system, and partly of those *undigestible* portions, such as woody fibre, which being part and parcel of the food, are necessarily taken into the stomach with it, but which pass unchanged out of the body in the fæces. In an analysis by Berzelius, the celebrated German chemist, seven per cent. of vegetable and animal remains were found.

These researches, then, pretty uniformly tend to support the economy of reducing the food of stock to a fine state of division—a practice, however, which can hardly be carried out to any material extent without the aid of steam. We have seen, too, that it is necessary, amongst other things, to be careful in such cases, lest we reduce too much in this way the necessary *bulk* of the food. With these precautions it would certainly seem that the ordinary amount of food may, in many instances, be still profitably reduced, by its soluble and nutritious portions being more completely extracted.

A USEFUL TRIAL WITH THREE DIFFERENT KINDS OF SHEEP TO FIND THE MOST PROFITABLE BREED.

SIR,—The conviction that the Mark-lane Express is throwing more light upon agriculture, direct and indirect, than any other journal upon the globe, not only in theory, but practice combined, causes me to send you this letter.

If an old manuscript serves me right, a grazier of great eminence tried the following experiment in the year 1819. He purchased, in April 20, great Lincolnshire ewes with a lamb each, 20 pure bred Leicester ewes with a lamb each, and 20 Sussex Downs with a lamb each. The 60 ewes with their lambs were put upon 40 acres of famous old grass land, with 35 first-class Hereford oxen. The ewes were taken from their lambs and off the land on the 20th September, and their lambs were all wintered and summered in the said close without any other sheep until the 5th November. The 60 lambs, all alive, had been on the land two summers and one winter without cake, corn, or turnips, nay, or anything else but what the said land produced—grass. The Lincolns averaged, when slaughtered, 30lbs. per quarter, and cut 12lbs. of wool each; the Leicesters averaged 26lbs. per quarter, and produced 7lbs. of wool each; the Sussex Downs averaged 23lbs. per quarter, and sheared 5½lbs. of wool each. Wool, at £2 per tod, would bring 17s. 1½d. each fleece of the Lincoln; the wool of the Leicesters, 10s. each fleece; and the wool of the Down, 7s. 10½d. each fleece. The Lincolns produced 120lbs. of mutton each; the Leicesters produced 104lbs. of mutton; and the Downs 92lbs. of mutton each. The 20 Lincolns, when added together, made 2,400lbs. of mutton, the 20 Leicesters produced 2,080lbs. of mutton, and the Downs made 1,840lbs. of mutton.

Since this trial took place, the Southdowns have wonderfully improved in frame, weight of mutton, &c. Many of the purebred Leicester flocks have degenerated in constitution; whilst the Lincolns were never better—Peterborough ram fair as a proof. SAMUEL ARNSBY.

Mill Field, Peterborough, June 3rd, 1858.

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* Why was the translator's name not appended to this Essay? Why is he not encouraged to make other valuable efforts in this way?

ROYAL AGRICULTURAL SOCIETY OF ENGLAND.

A Weekly Council was held on Wednesday the 26th of May, present: Colonel Challoner, Trustee, in the chair; Lord Walsingham, Lord Bridport, The Barons de Laffert (of Mecklenburg), Mr. Raymond Barker, Mr. Caldwell, Mr. Corbet, Mr. Glegg, Mr. Harkness, Professor Henfrey, Mr. Jennings, Mr. Maddison, Mr. Majendie, Mr. Milward, Mr. Pollard, Mr. H. A. Smith, Mr. Timms, Mr. Burch Western, Mr. Wilson (of Stowlangtoft), and Professor Wilson.

Communications were received; 1. From the Board of Trade, announcing the occurrence of a disease in the wheat-crops of the valley of Mexico, called by the Indians "chahmztle," and similar in external appearance to the disease known to English farmers under the term *rust*. 2. From Mr. William Cohen, of Bishopsgate Churchyard, offering his services to collect statistical information on the "actual consumption of guano, whether the real or spurious article," in order to show, what he believed to be the case, that one-half at least of the substance sold as guano would prove to be spurious imitations of that article; and by such evidence to induce Messrs. Antony Gibbs and Co. to reduce their price for genuine guano, with a view to double their sales by driving the spurious mixtures out of the market.

Professor Henfrey, of King's College, London, then delivered the following lecture on Vegetable Physiology in reference to the kinds, races, and organs of plants.

Mr. President and Gentlemen,—In preparing to execute the task with which you have honoured me, I felt considerable difficulty from the peculiar circumstances of the case. The occasional lectures which have been delivered in this room have been for the most part given with a view to promote practical agriculture, and they have had a more peculiar interest here from the circumstance that these experiments have generally been undertaken at the instigation of the Society. Now, scientific men, called upon at short notice, are not always in a position to furnish new facts or new conclusions, or to bring forward series of researches which are capable of practical application. In my own case, my recent work has been devoted especially to subjects whose application to science or whose relation to science is at present rather remote, and in fact to subjects which are so abstract that they scarcely admit of popular treatment: I was therefore thrown more on the general subject. Here again a certain difficulty met me in the circumstance that vegetable physiology may be said to be still in its infancy. Hence it is in possession only of a few well-established generalizations, and these are too well known and too commonplace to form the subject of a lecture; while the objects of its present activity consist chiefly of questions still in a state of debate, overloaded with unclassed, unsatisfactory, and even contradictory evidence, the attempt to discuss which could only have led to a kind of controversial thesis. It appeared to me, therefore, better, especially in consideration of circumstances to which I shall presently allude, to occupy your time with a few illustrations of the nature and objects of the science of vegetable physiology itself, selecting these illustrations, as far as possible, from departments of the subject which either do at present or hereafter may admit of a practical application. The circumstance to which I have just alluded as especially influencing me is the tendency or the direction of agricultural physiology of late years—the tendency which rather leaves vegetable physiology, properly so called, in the background. If we look back for a few years at the literature of agricultural science, we find that the works which have made most impression, those which have been most valuable, and are best known, have been written by chemists. I need scarcely allude to the works of Liebig and Mulder; even in the writings of Boussingault, and of Lawes and Gilbert, vegetable physiology, properly so called, has been recognised; still the vital qualities of plants have been rather looked upon as secondary considerations than as primary. The chemistry of the subject has been that which has principally occupied attention. Far from complaining of this, far from regarding it as a mistake, I regard it as desirable, inevitable, if we would make secure progress, because vegetable physiology does really depend upon chemistry for some of its most important materials. Vegetable physiology is not merely organic chemistry; but organic chemistry is required to advance to a certain degree of perfection, before we have the material upon which vegetable physiology, properly so called, can work. It is hardly necessary to remind you of the views which have been entertained by those who have pressed the chemical theory of physiology too far, with the notion that the life of plants or animals consisted merely in a succession of chemical changes. Such a view can only be entertained by those who take an extremely one-sided view of the subject. The old illustration of the duck's egg and the hen's egg are sufficient to show that there is something more than chemistry in the difference of species, and the same argument may be carried throughout all the details of life, throughout the whole phenomena of organization. Chemists will scarcely be able to distinguish, by any means belonging exclusively to the chemist, between the germ of the hen and the duck; but in those germs, undistinguishable from one another, lies the energy which results in the product of a totally different organization. The line of argument thus illustrated shows at once that we must, in order to cultivate vegetable physiology, advance a step beyond the mere examination of chemical conditions and changes, and take into account the phenomena of life. The phenomena of life as regards plants may be called the phenomena of organization—that is, the phenomena presented by the conversion of mineral or dead matter into organs. Now, the difference between organs and substances—those parts or constituents which distinguish living things from mineral or dead substances—lies in the circumstance, that while in substances we have what we may call merely qualities, in the organs we have what are called functions. The qualities are, as it were, passive characteristics; and functions are active characteristics—manifestations of constant, or at all events periodical activity, in the presence or manifestation of which we distinguish the force which we call the vital force. This continued activity, more or less independent of external cause a resulting in continued or periodical change, is the sign of the existence of this vital force—that force whose laws form the subject of vegetable physiology. The collective functions of a plant or animal constitute its life. I will now confine myself to the consideration of the life of plants, consisting in the performance of their collective functions by the different organs. Now, these functions collectively constituting the life, exhibit what we call the constitution. When we say that a plant has a particular constitution, we mean that it performs its functions in a particular way. It is to the examination of the constitution not only of plants, but of the organs or parts of plants, to which vegetable physiology has especially to direct its attention; and I wish to-day briefly to indicate some points of importance in regard to this subject—the constitution of plants or their organs.

In the first place, I would direct attention to the phenomena illustrating the existence of constitutions in species or kinds of plants. The phenomena which prove these are familiar to every one. Every one knows, for example, that Chickweed flowers in the winter season, when the great proportion of the plants growing in this country are unable not only to form flower or seed, but even to put forth their leaves. The irritability (to use a somewhat hypothetical expression) or the vital activity of this plant is evidently very different from that of the majority of plants in this climate; the particular irritability there denotes its constitution; it is the constitution of the plant which causes it to pass through these changes under different conditions from other plants, scarcely distinguishable probably in the majority of their characters. There is nothing known, and probably nothing to be known, in the case of Chickweed, to distinguish it chemically from many other common weeds, but it is the peculiarity of the constitution of that species, that it passes through these changes under different conditions. Abundant illustrations of these peculiarities might be readily furnished, with which it is scarcely worth while to take up your time; for instance, the late flowering of the Ivy in November, the flowering of the Hellebore or Christmas Rose in January, and so on, as contrasted with the summer and autumn flowers, forming the great mass of our native and cultivated vegetation. These peculiarities of constitution are not entirely explicable by the view which has been taken by some authors, that plants are dependent for their growth upon a certain supply of heat given to them. Some years ago M. Boussingault published some interesting researches, in which he showed that many plants, especially cultivated plants, required a certain sum of heat for their perfect development; that between the time of the germination of the seed and the ripening of the fruit, or the production of the grain, the plant required to receive a certain amount of heat. He measured this heat by taking the daily mean temperature and multiplying it by the number of days, and he found that the plants received pretty nearly the same amount of heat in very different climates. Where the heat was greater the plant was perfected in a smaller number of days; where the heat was less a greater number of days was required. For instance, in Alsace, where his own property was situated, he found that Barley would be perfected in ninety-two days, where there was an average temperature of 19 deg. of the French thermometer, giving a total of 1,748 deg. He then obtained the Date from Cumbal, situated under the equator, where the plant was grown between June and November, instead of between May and August; the daily temperature was there (it being in the colder season) between 10 and 11 degs., and 168 days were required for the perfecting of the plant, giving a total result of 1797 degs. In many cases the numbers came out very satisfactorily for this hypothesis, showing that the plants required a certain sum of heat, and that that heat might be given in small proportions during a large number of days, or in higher proportions in a small number of days. However, there were many important exceptions to this rule, those depending on certain matters of detail which were overlooked in the first experiments. For instance, Boussingault did not pay attention to the omission of useless heat. Many plants do not move at certain temperatures, even far above the freezing point. No plant, probably, will vegetate or perform any of its vital functions under the freezing point: many require several degrees above freezing point before they begin to start into life. That must be ascertained in each individual plant before we can calculate the useful heat which it receives, as we must omit all degrees below the point at which the plant moves. Then it is important to take into account the temperature of the soil, upon which the development of plants very greatly depends. We have no more striking illustration of that than was furnished by the records of last year, when the temperature of the soil in this country was found far above the average during the later months, the result of which was the flowering and even the ripening of seed in many plants, which very rarely perfect their fruit in this country. Though the consideration of the constitution of many plants may be reduced practically to a consideration of the climate—the supply of heat varying with the length of time during which the plants grow—still there are limits to these conditions. Supposing the calculations to be carried out with the precautions to which I have just referred, there are certain limits beyond which they cannot be admissible. Over-supplies of heat do not produce the same results in a shorter time, but produce disease; and cold below a certain temperature will prevent the performance of the vital functions at all. It is well known that in the Feroe islands and in Iceland the amount of heat is never sufficient to produce the ripening of the seed of grain, even though the vegetation of the plant be prolonged to a much greater extent than in this climate; there is not a sufficient stimulus ever given to the plant, so that the natives are obliged to import their seed, though they grow the grain year after year. Again, we may note the information furnished by travellers in regard to vegetation on the island of Madeira. There, in the season when the mean temperature approaches that of our own summer, our Beech loses its leaves and remains without them for 149 days; the Oak remains without its leaves 110 days, the Vine 157 days. The Vine again affords an example of the noxious results of excessive heat, because in climates near the equator the plant scarcely produces fruit, or only fruit of a very imperfect character, running away to vegetation, and losing those qualities for which it is most valued. This constitution of particular kinds of plants is a subject of great importance both to the agriculturist and the horticulturist, and its practical influence has strongly attracted attention in those valuable experiments which have been carried on at Rothamsted by Messrs. Lawes and Gilbert. There they have found most important differences, not only between such plants as Turnips and Grain crops, but also differences of constitution between Barley and Wheat—plants belonging to the same natural families, and differing (scientifically speaking) only in slight peculiarities from each other.

We cannot doubt the existence of this peculiar constitution in species of plants. But going a step beyond this, we find that individual plants have their constitutions, and the result of this variation within the limits of particular species is to produce plants having characters considerably different from each other, and yet referable all to the same specific type. Species of plants are subject to variations according to externa conditions, variations which not only affect their structure, but declare themselves in a difference in constitution. Some of these differences of constitution are transmissible, as also the differences in the details of the minor parts of their organization. The preservation of peculiarities of this kind, transmitted through generations, results in the formation of what are called races of plants. When we see a variation of species, a particular modification, falling within the specific type, which presents desirable qualities in regard to structure or constitution, we endeavour to preserve it, and cultivation is, to a great extent, devoted to the preservation, the continuance, and improvement of races established in this way. It is because the constitution of these variations of the original form is favourable that we endeavour to preserve them; and when we have firmly fixed these peculiarities in a series of forms, generation after generation, we have produced a "race." The varieties on which these races are founded may perhaps be attributable, in the first instance, to physical conditions; these conditions may have produced the original modification from which the race takes its character. By this I would not admit, for a moment, that the external conditions may transform one species, properly so called, into another; but every species has a certain range of differences, and external conditions may call out one or other of these modifications under particular circumstances. I think it probable that most variations of particular species may have been produced by external conditions in the first instance; it is true also that the external conditions have great influence in preserving these characters in races; but we find that in old-established races the character is preserved with a certain obstinacy in spite of external conditions, and that the running back or reverting of such races is slow. The races which are cultivated chiefly in this country—races of Wheat, plants belonging to the Cabbage tribe, Turnips, Cauliflower, and so on—are most of them very old, and we have little information as regards their origin. Gardeners prosecute this part of cultivation—the formation of races—very actively; and with florists especially the production and establishment of races is one of the most important departments of their art, being as important to them as the importation and introduction of new species. They obtain these different races by sowing large quantities of seed, selecting the specimens which come up of the form which they require, saving these alone, and repeating the process generation after generation, getting rid of all the forms which are most like the original parent. It has been observed by cultivators that there are certain peculiarities in the product of these successive sowings, which can scarcely be called unexpected, because we see the same thing illustrated in the races of animals and even in the human race. Two general rules are derived by gardeners from the observation of the phenomena presented in this production of races by successive sowings. The first is that like produces like. They save the seed only of the variation which they wish to preserve, and the probability is that it will produce its like. This, however, is by no means certain, as every one knows. The seed of any variety produces a great number of varieties, of which only a part are like the immediate parent. It is found that there is a tendency for several generations to run back to some of the former generations, in contradistinction to the rule that like produces like, and this is called by physiologists *atavism*, or a "taking after" their ancestors. M. Vilmorin, a distinguished Belgian florist, thinks that the best way of breaking this tendency to run back to the ancestral type—to take after their grandfathers or great-grandfathers, instead of their fathers—is to select for a number of generations those forms which are least like the original parent; to get the forms as far as possible away from the original type, in the first instance, before proceeding to select the absolute form which is required. After a certain number of generations, however, of course, this atavism will begin to act on the same side as the tendency of like to produce like. If we get a number of generations of the race resembling one another generation after generation, of course the tendency to go back to the ancestors will not tend to alter the plant, because it will have a long line of similar ancestors before it, where it will not find the differences which it did in the original case. From this it follows that the older a race is, the more it is fixed. If a particular form has a long line of similar ancestors, the tendency to run back to the form of its ancestors co-operates with the tendency to be like its immediate parent; both these work to the same end, and the practical deduction is that races recently established have little or no fixity; that the older a race is, the more firmly and surely its peculiarities are fixed. We have illustrations of this in the human race, and amongst the most striking may be mentioned the Jewish race, undoubtedly one of the most ancient, in which we see fixity so strikingly marked under such very different external conditions. In this second part of my discourse I have directed attention to the importance of physiology in reference to races. The subject of races is one which belongs particularly to physiology as distinguished from organic chemistry; as also does the constitution of species or kinds of plants, of which I have previously spoken.

The third head of my lecture has reference to the constitution of particular organs. No organ, perhaps, is of more interest in this respect, or presents a greater variety of conditions, having relation to practice, than the root. It is very much the case with those who take merely a chemical view of physiology, to regard the root as a kind of absorbing machine, as a process of prolongation of the structure into the soil (serving like the lower part of the wick of a lamp) to absorb the nourishment contained in the soil. Such a view as this is a very partial view of the nature of the root, and leaves out of consideration the most important of its physiological characters. In the first place, roots are very different in their kinds. We have two classes of roots among the flowering plants, examples of which occur among commonly cultivated plants. We have roots such as are produced by the turnip, by the bean, and various leguminous plants; and we have roots produced by the different kinds of grass and grain plants, where there is an original difference in the structure, a difference depending on the modes in which they first sprout from their seed. One class produces a large root; the class to which the turnip and bean belong produces a main trunk, a continuation of the lower part of the stem, from which the different absorbing branches are given off as the branches are from the trunk above. In the grass and corn plants there is never any main trunk of that kind produced, but a variable number of fibres or filaments thrown out from the bottom of the stem, as we see from the bottom of a Hyacinth bulb when growing in a glass. The number of these and their vigour depend greatly upon the stimulus applied to the plant at the base of the stem when the roots are sprouting. The number is not fixed in any given plant; it varies to a great extent in proportion to the supply of food furnished to the plant.

But when developed in either of these ways, plants do not all send their roots at once into the soil to absorb the food in the same way. We have ordinary plants growing down into the soil; then we have a large class growing in water; and in addition to these there are others which never make their way into the earth or into the water, but are supplied by the moisture contained in a damp atmosphere. Considerable difference must necessarily exist in the way in which these plants absorb their food; and not only is this the case, but we have plants which do not absorb their food from the soil or from any mineral sources. For example, we do not unfrequently find Clover fields in this country infested by a vegetable parasite, of which the plant before me is a specimen, having brownish withered-looking stalks apparently destitute of leaves (the leaves being represented by scales), and terminating in pale brawnish flowers. These flowers are as perfect as that garden Snapdragon, or the Foxglove, to which they are nearly allied, and they produce seed as perfectly as ordinary plants with proper leaves and well-developed structures. This plant will be seen to be firmly attached to the Clover—indeed when the sections are placed under a microscope the two structures are found to be organically connected. The germination of these plants has been observed. When the seeds are sown they sprout in the ordinary way; but if they do not find a plant of the kind upon which they are naturally parasitic, they wither away; if they find a plant of the kind in the neighbourhood they send their slender rootlets into the root of the plant which they are about to infest, and very soon the structures become completely grafted, after which the plant derives the whole of its nourishment from the root of the plant which it has attacked. Not only have these plants a particular constitution, but they infest particular species or groups. This small Broom (Orobanche minor) infests Clover, another kind infests Ivy, another kind infests bed-straw; six or eight different species are known to botanists of this country, and many more in foreign countries. This plant is an illustration of a peculiarity in the constitution of roots upon which depends the pecularity of the entire plant. It is a plant interesting to agriculturists, not on account of any beneficial results, but on account of the mischief which it does. I have also here a specimen of the Dodder (Cuscuta), which has been so mischievous occasionally also in Clover fields, particularly in Norfolk. The plant has flowers like the Convolvulus on a small scale; it belongs to the family of the Convolvulaceæ, the same family to which belongs another pest, the Bearbind. This plant forms perfect seeds like the seeds of the Convolvulus, and the flowers are in all respects as complete as the flowers of that plant. When the seeds fall to the ground they germinate like ordinary seeds, they stretch out along the ground in a little narrow wire-like pr6cess, and if that does not meet with a clover plant it dies; but if it finds the clover plant, it makes its way to it, and the older part of the original root soon withers away. The part of the stem which is attached to the clover produces little papillæ or peg-like processes of a delicate structure, which drive their way into the tissue of the stalk of the clover. The plant derives the whole of its nourishment, after the first early epoch of its growth, from the juices of the plant which it infests: the plants are entirely parasitic. But the modifications of parasitism by means of roots are not exhausted by such plants as broomrapes and dodders; for we have others which are imperfectly parasitic, and which have in this kind of parasitism a distinct constitution. Of these are the weeds often found in pastures, called the Eye-bright, the Yellow-rattles, and some others. I have before me a specimen of a Thesium, a plant also belonging to this class, which is rather rare in this country. The roots at first attach themselves to other plants like the broomrapes. A careful examination shows little suckers or disc-like processes upon the roots; but when the plant obtains a certain degree of vigour it ceases to be parasitic, it ceases to depend upon the nurse, throws up a stem, becomes covered with green leaves, and provides for its own sustenance. The Mistletoe is an example of parasite where the root ceases to exist at a very early stage of growth. When it germinates it produces a rootlet like any other seed. It attaches itself to the branches of the trees it infests by the viscid gummy or mucilaginous matter surrounding the seed. If it falls upon an old branch covered with a corky bark it will germinate, but nothing more; but if it falls upon a young shoot covered merely by a delicate thin rind and sticks there, when it begins to germinate the lower part of the stem spreads out to a kind of disc, and from the centre. This the little rootlet penetrates through the spongy parts beneath the bark, making its way to the cambium, where the new growth of the nurse-plant will take place, so that the seedling is brought exactly to the same condition as a bud when it is grafted on the stock in the ordinary operations of gardening; an organic connection is set up, the tissues become vitally connected, and then the plant becomes, as it were, a branch of the nurse-plant, and no longer produces any root structure. Still, though it has no root, unlike the broomrapes to which I have adverted, it does produce green leaves; even its stem becomes green; and it decomposes oxygen; therefore, though it does not absorb its own food, it performs some part of the processes of vegetation, and takes a share in the elaboration of the food. These are interesting cases of peculiar constitutions in plants, manifesting themselves in peculiar vital qualities, as they may be fairly called, in the roots. It certainly must be regarded as a vital peculiarity in these plants that they attach themselves in this way not merely to other plants, but to particular parts and even to particular species of plants.

In preparing this lecture, I have noted down in regard to this subject some facts and conclusions as to the functions of roots generally in reference to the supposed phenomena of choice. The above are illustrations of what may be called in roots a choice of food, and they may be taken as serving, in part, as evidence on the general question. But we must not regard this kind of choice in the same way that we regard choice of food in man, for example. The plant cannot go and seek out what food it pleases, but it has a kind of negative choice. It cannot grow upon food that is unsuitable; it must have that food which is suited for its particular constitution. If the food is indifferent, the plant will not grow, but need not be absolutely injured. If the food is noxious, the plant will be killed by it, but to grow properly it must have food which is favourable; so that we may say there is a kind of choice, which, as already remarked, is as it were negative. It has the power of refusing to grow unless proper food is supplied. That is the only way in which we can suppose that plants have really a choice. I think this statement is sufficient to explain many of the phenomena which have been brought forward, as tending to prove the existence of choice food in plants. The circumstance that a fair supply of food favourable to the plant exists in the soil is sufficient to account for the plant possessing abundance of that particular substance in its ash, and a greater abundance of that substance in its ash than another plant whose constitution does not require that particular kind of food, and which has been well developed in a different soil. In addition to this refusal to produce organization out of unfit food, we have certain phenomena which are partly chemical and partly physical. The absorption of the root depends to a great extent upon what is called endosmosis—the power of the membrane of the rootlets to draw in fluids and solutions by which the root is surrounded with a certain amount of force, arising in many cases simply from the fact that the fluids within are denser than those without. But decompositions probably take place immediately inside the membrane of the rootlets, and the decompositions may cause differences in the proportional absorption of different constituents of the soil. That, however, is rather a speculative than an assured point. The greater part of the absorption of liquid food is decidedly a mere physical process. Supposing the food to be favourable and accessible, and supposing the proper conditions to be fulfilled in the different species, the absorption of food is, to a great extent, a mere physical process. It is the result of the action of endosmosis. If you put a solution of gum into a bladder, and place that in water, the gum will attract the water with great energy, so that it will swell out, and if the proportions are suitable, may even burst the bladder. If the pressure is withstood there may be a filtration through the bladder from the tension produced by the excess of absorption. Some experiments have been recently made by the German physiologist, Hofmeister, showing that the endosmosis is the principal cause of the flow of sap upwards into plants. More than 150 years ago Hales showed that such sap flowed out from plants, especially from the vine in spring, with considerable force. His experiments with glass tubes containing mercury showed that cut branches of the vine emitted the sap in spring, at the time of what is called the bleeding of the vines, with such force as to raise a column of mercury equal, in some instances, to an atmosphere. The same observation has been confirmed by other observers; and Brücke has observed that the force depends upon the distance of the branch from the root—for instance, that a branch close to the root would lift 30 inches of mercury, while a branch 15 inches above the root would only lift half that quantity; so that the branches and the stem acted, as it were, like intercommunicating tubes, and the pressure was diminished in proportion to the distance from the roots. Hofmeister has gone further than this, and has shown that the force lies in the roots. By fixing the tubes upon the roots themselves, and in making some experiments on the common herbaceous garden plants, he has found that the same force exists throughout all of them, and throughout all seasons, modified by conditions of humidity of the atmosphere and soil. In one experiment on the common foxglove, a plant a yard high was cut off near the root, and a tube containing mercury, similar to a barometer tube, was fixed upon this; it was found that the force of the sap driven out from the crown of the root by the absorption of water from the surrounding soil would raise a column equal to 20 inches of mercury. Even little seedling peas were found to be capable of forcing up a column of 1 inch of mercury. The structural conditions of the tissue of the root all tend to show that these experiments are worthy of credit; the conditions of the root are exactly those which would favour this endosmosis, and also this driving of the fluids upwards in the long tubes and canals of the woody tissue, when it was filtered out from the absorbing cells by the tension produced by excessive absorption. In these experiments a most important difference in the pressure was found to result from the amount of evaporation going on in the leaves above. Where the evaporation was very rapid the pressure was removed, and thus no tension or gorging of the vessels or soils could result. This evaporation is important as connected with the influence of excessive vegetation in modifying the condition of roots. It is well known—it is shown by the experiments, I think, of most cultivators—that excessive development of the foliage is unfavourable to the development to the roots of plants in the first instance. We have not only to consider the different direction of the energy of the plant, and the tendency of the growth of the foliage itself, but I think the rapid evaporation from the leaves may cause too quick a flow of the sap through the structure, and prevent that elaboration which is necessary from taking place in the roots. I think all our observations hitherto tend to show that a certain amount of elaboration does take place in the roots themselves, and if there is too rapid a flow of the nutriment absorbed by the roots towards the upper part of the plant, there is not a sufficient supply of elaborated nourishment in the roots, and we get too crude a condition of sap in the upper part. In the cases of plants cultivated for their flowers, we see excessive luxuriance of foliage producing an indisposition to flower and a throwing back of the whole growth. The same thing occurs wherever we promote too great luxuriance of foliage in grain plants, as when we stimulate Wheat by excess of nitrogenous manures. There is too great a development of vegetative structure, and the same supply of climatal agency (heat, light) is incapable of thoroughly ripening the seeds. We see the same in garden plants, where too rich a soil prevents the plants from flowering. Almost any common weeds if transplanted in a garden will run away and produce leaves, and perhaps flowers, but the seeds will scarcely ripen; and even with cultivated plants it is a common practice among gardeners to prune the roots, to cut of the supplies of nourishment, especially by withholding water, and thus cause the plant to turn upon itself as it were, and elaborate its food rather than devote it to the production of new tissues.

The absorption of food by the roots is concerned not only with water, but with the most important of the materials out of which vegetable structure is formed, namely, nitrogen There is little doubt that the greater part of the nitrogen contained in plants is absorbed by their roots. All experiments tend in this direction. When I say that nitrogen is the most important of the substances absorbed by plants, that is the conclusion derived from both chemical and anatomical investigations into the structure of plants. I may direct attention to a paper I published in the last part of the Society's Journal for evidence of the importance of nitrogenous substances, not only in the development of the tissues, but in the formation of the secretions or elaborated substances. Not only does the examination of the structures show this, but experiments with manures also thoroughly prove it. That nitrogen in excess will do mischief I have already stated, because it will produce excessive growth and prevent proper elaboration; but a certain amount of nitrogen is necessary in order to convert what may be called the wild plant into a tame one, to produce that full development of structure which we consider necessary to the perfection of the plant. The cultivated plant has all its favourable characters more fully developed than the wild plant through this more abundant supply of food, and the most important of the stimuli in this food is undoubtedly nitrogen. The recent experiments of M. Boussingault on the growth of plants with or without nitrogen, and with and without phosphate of lime in combination, are very interesting in this respect. He grew sunflowers—1st, in a mixture of pounded brick and sand, carefully purified; 2nd, in the same mixture with nitrate of potash and phosphate of lime added; and 3rd, in the same brick and sand mixture with carbonate of potash and phosphate of lime (thus giving the alkali and keeping out the nitrogenous substances). The plants grown in brick-dust and sand, after struggling through a few weeks of vegetation, attained only a height of six inches, and they produced a flower about an inch across; and the same result, with but little difference, took place where the plants were grown in the same mixture with phosphate of lime and carbonate of potash. The phosphate of lime did not enable the plant to go beyond this starved condition; and when the whole was analyzed, the plants were found to contain little more nitrogen than was originally present in the seeds. They were freely exposed to the atmosphere, but they were incapable of extracting from the atmosphere sufficient nitrogen to do much more than to keep them alive. The plants, however, in the brick-dust and sand, to which not only phosphate of lime but nitrate of potash had been added, grew between three and four feet high, and were equally high, and were as healthy and fertile as plants grown in a rich garden soil. As an instance of the vital powers of the different plants, I may cite some figures. The plant in brick-dust and sand alone produced, taking the seed as one, a dry product of little more than three parts; while the one with nitrate of potash and phosphate of lime produced 198 parts; and that of the phosphate of lime and carbonate of potash about four parts. The plant in the nitrate of potash showed 200 times the quantity of nitrogen existing in the others. The result of the nitrogen present in the plant was shown also in the quantity of carbon fixed in the tissues—the substance of which the solid structure of the plant is chiefly built. The carbon fixed in the plant grown in the brick-dust amounted to little more than the 1½ grain; in the plant grown with the nitrate of potash it amounted to 120 grains, or eighty times the former. The carbonic acid, which was decomposed in twenty-four hours by the starved plant, was only 2½ cubic centimetres; while that fed upon nitrate of potash consumed in the same time 182; showing that the presence of nitrogen in the manure was that substance which not only produced the development, but produced the increased quantity of nitrogen in the product and the fixation of the carbon. These experiments, physical and chemical, bring the evidence from one side of the question to complete the reasoning furnished by the anatomical conclusions to which I previously alluded. The results are remarkable in the two cases. Boussingault's experiments show that nitrogen is the efficient agent in the assimilation of food, and the anatomical examination of the tissues demonstrates the actual process of elaboration taking place in the midst of these nitrogenous substances.

There are one or two other points to which I must briefly advert, as of interest in reference to this matter. I may mention, in the first place, that we have lately had a new hypothesis as to action of roots from Liebig, which, however, can only apply to roots of a certain kind, and not at all to those growing in water or very wet soils. He has formed the supposition that roots act not merely by absorption of solutions, but by decomposing solid substances with which they come in contact. In this he endeavours to explain the abstraction from soils of substances apparently insoluble. He finds that not only do aluminous soils, as shown by Prof. Way, fix various useful substances, and prevent their filtering through, but that humous soils also have a similar power. Recent researches of Thenard show that phosphates are rendered insoluble when they come into contact with alumina or oxide of iron, and that these are decomposable again by soluble silicates, and in that way the phosphates rendered available. Now, supposing the phosphates are taken up in solution, it would appear to be requisite in a soil containing abundance of alumina that soluble silicates should be also present. But, as I have said, Liebig thinks the roots may be able to decompose and abstract parts of these insoluble compounds. There may be some truth in this; and if so, we must attribute it to certain peculiarities in the constitution, as we may say, of the roots themselves. As an illustration of the possibility of some such process, I may direct attention to what takes place in the fungi, where we decidedly have a direct action of the surface of roots upon the media in which they grow. We know that the process of fermentation takes place during the action of yeast on liquids with which it is in contact; that is, the action of the surface of the membrane of the yeast and the interchange of the contents of the cells with the liquid that produces the conversion of the wort into the alcoholic fluid. It is the same with the plants that produce vinegar and that cause acid fermentation of vegetable preserves. There may be an action of this kind in the roots. The actual contact of the roots with the substances in the soil may be requisite, and in this way roots may be able to abstract from the soil food not previously in solution, but in a state of fine subdivision, chemical action being rendered probable by the moisture present in the root.

It would have been desirable perhaps to have directed your attention to some speculations with regard to the influence of phosphate of lime upon roots, but time will not admit of this, and moreover our knowledge on the subject is extremely limited. No doubt there is a kind of specific action of phosphate of lime upon roots, that it does favour the production of roots at particular seasons, and under particular conditions of cultivation. How and why it does so science, I think, is unable at present positively to demonstrate, and it is too late to-day to enter into any speculations with regard to this point. I may say, however, that for the settlement of that point only carefully devised and extensive experiments can be of any service. In regard to such experiments, I will make one remark in conclusion of my lecture. I must differ, or apparently differ, to a certain extent, from our professor of chemistry in one opinion to which he gave expression in his late interesting lecture concerning the office of science in relation to practice. I am not of a sanguine disposition—am considered rather cautious than otherwise; but I must declare that I look upon science as not onlythe means of explaining what has been done, but as the great instrument by which we shall discover means of doing what we have never done before. It is quite true that in the present state of knowledge agricultural practice may be in advance of science: theory has not worked its way up to the point in which it can explain all science, much more lay down any new rules for guidance. That is the result of the condition of the particular branch of science: it is not the fault of the science itself. That it is unable to do so, arises from the condition in which the science is placed by the natural course of events. Physiology depends for one complete set of its data upon organic chemistry; organic chemistry could never be properly worked out until mineral chemistry had made considerable advances; and even were these departments of inquiry perfect, there is still meteorology in its infancy, incapable as yet of explaining peculiarities of climate, so as to unable us in some degree to foretell events with regard to weather, as the astronomer does as regards the movements of the heavenly bodies. I do not consider that this imperfect state of our information demands the conclusion that we are to give up the position of science as the leader of practice. I think that when we look upon the other branches of science which have to deal with simpler forces and less complicated questions, we have every reason to suppose that with proper prosecution of experimental inquiry in physiology, we may be able to use speculation as a means of greatly improving and advancing our practical knowledge. When we see the results of speculation in physics and chemistry, in the conquests of the powers of steam, electricity, light—all products of speculative or abstract science—I think we should not doubt that when physiology has ascended to the same relative stage, that branch of science will take its proper position, and be the guide and leader of practice rather than simply an humble follower in its footsteps.

On the motion of Lord Walsingham, seconded by Mr. Caldwell, the best thanks of the meeting were voted to Professor Henfrey for the able, learned, and interesting lecture with which he had then favoured them.

A Monthly Council was held on Wednesday, the 2nd of June; present: Lord Berners, President (in the chair), Lord Walsingham, Lord Faversham, Lord Portman, Sir Philip Egerton, Bt., M.P., Sir Archibald Keppel Macdonald, Bt., Sir John V. B. Johnstone, Bt., M.P., Hon. William George Cavendish, M.P., Mr. Raymond Barker, Mr. Barnett, Mr. Hodgson Barrow, M.P., Mr. Barthropp, Mr. Bramston, M.P., Mr. Brandreth, Colonel Challoner, Mr. Druce, Mr. Brandreth Gibbs, Mr. Fisher Hobbs, Mr. Wren Hoskyns, Mr. Humberson (Mayor of Chester), Mr. Lawes, Mr. Lawrence, Mr. Milward, Mr. Chandos Pole, Mr. Pope, Mr. Shuttleworth, Professor Simonds, Mr. Thompson, Mr. Torr, Professor Voelcker, Mr. Burch Western, and Mr. Wilson, of Stowlangtoft.

The following new Members were elected:

Armstrong, John, Palterton, Chesterfield, Derbyshire
Barwell, Thomas, Leicester
Bircham, Merrick, Chosely, Docking, Norfolk
Bowers, Henry Richard, Eastgate Row North, Chester
Brooke, T. I. Langford, Mere Hall, Knutsford
Brooks, James, Henley-on-Thames, Oxfordshire
Bowers, Thomas, Chester
Butt, Thomas, Pirton Farm, Kempsey, Worcestershire
Carr, William, Langcliff, Settle, Yorkshire
Cave, Henry Haddon, Desborough, Market-Harborough
Cnivas, George, Eastgate-street, Chester
Clarkson, Townley L., South Elmham, St. James's, Harleston, Norfolk.
Coggins, G. Fisher, Coombe, Woodstock
Cohen, William, Bishopsgate Churchyard, London
Etches, William, Harbythorn, Newcastle, Staffordshire
Faulkner, John, Bretby Farm, Burton-on-Trent
Fletcher, Samuel, Ardwick-place, Manchester
Foden, John, Mere, Knutsford
Francis, Clement, Cambridge
Garnett, William, Clitheroe, Lancashire
Humble, William Turner, Sealand, Chester
Hunt, John, Rainham, Rougham, Norfolk
Kindersley, Edward Leigh, Syward Lodge, Dorchester, Dorset
Mansfield, John, Trent Vale, Newcastle, Staffordshire
Morrell, James, Headington-hill, Oxford
Norton, John Edward, M.D., Greyfriars, Chester
Parson, G. F., Waldringfield, Sudbury, Suffolk
Perren, W. B., Compton, South Petherton, Somerset
Ruse, Robertson, Warfield, Bracknell, Berks
Savill, Henry, Boleyns, Braintree, Essex
Saxton, William Waring, Market-Drayton, Salop
Sawers, John, Dunbar, Scotland
Smith, Thomas, The Lodge, Northwich, Cheshire
Wallace, John, Houghton, Stockbridge, Hampshire
West, Mrs. Sarah, Bletchington, Oxfordshire.

Finances.—Mr. Raymond Barker, Chairman of the Finance Committee, presented the monthly report on the accounts of the Society, from which it appeared that the current cash-balance in the hands of the bankers was £3,034.

Prize Essays.—Mr. Thompson, Chairman of the Journal Committee, reported the following adjudications:—

To J. Lang, M.D., of The Elms, Newton-Abbot, Devonshire, the prize of 10 Sovereigns, for his Essay on the Cultivation of the Potato.

To Henry Tanner, of the Lodge, Puddynton, near Crediton, Devonshire, the prize of 50 Sovereigns, for his Report on the Farming of Shropshire.

To James Dixon, of Ashley, near Altringham, Cheshire, the prize of 20 Sovereigns, for his Report on the Improvement of Grass Land by the Use of different Manures or Manurial Substances.

Lectures.—Mr. Thompson also reported from the Journal Committee the following recommendation, which was adopted by the Council: "That Professor Simonds be requested to give a lecture before the Society, *On the Blood, its composition and circulation, with the diseases in which it is chiefly affected*: the first part of the lecture to be delivered on Wednesday, the 9th of June, at half-past 12 o'clock, and the remaining second part on Wednesday, the 16th of June, at the same hour."—The Council adopted the recommendation of the committee, that Mr. Moffatt's offer to deliver a lecture at Chester during the period of the meeting in July next, should be declined with thanks.

Mr. Lawes.—Mr. Thompson having placed before the President the engrossed resolution of thanks to Mr. Lawes for his valuable contributions to the Journal of the Society, along with a handsomely bound set of that work, prepared for the occasion under the directions of the Journal Committee, the President presented to Mr. Lawes, in the presence of the Council, these tokens of their high appreciation of his scientific researches and practical labours for the promotion of the objects of the Society. Mr. Lawes, in receiving them, thanked the President and Council for the honour of this flattering testimonial. He was well aware of the many defects in those labours in which he had been employed for so many years; but he might venture to claim for himself and his colleagues in the work their impartial and disinterested desire to promote by every means in their power the advancement of agricultural science.

Agricultural Chemistry.—Sir John V. B. Johnstone, Bart., M.P., reported from the Chemical Committee, that Professor Voelcker, the Consulting-Chemist of the Society, had exhibited to the Committee a diagram for experiments to ascertain the essential fertilising value of ammonia as applied to root-crops; and that he intended, on a future occasion, to offer some suggestions on field-experiments. Sir John Johnstone then submitted an enlarged schedule of Members' Privileges of Chemical Analysis, which was adopted by the Council. In this new schedule, not only an opinion of the genuineness of Peruvian guano may be obtained of the Consulting-Chemist by members of the Society, at the small fee of five shillings, but also a similar opinion of the genuineness of bone-dust or oil-cake, at the same rate of charge; for the fee of a sovereign, not only an analysis of oil-cake may be obtained by members, but also of any other substance used for feeding-purposes; and not only analyses of animal products, at a fee varying from ten to thirty shillings, but also "analyses of any vegetable product;" such privileges, however, not being applicable to analyses made for persons commercially engaged in the manufacture of any substance for sale.

Chester Meeting.—Lord Portman, Chairman of the General Chester Committee, presented the monthly report of the operations and arrangements connected with the ensuing Country Meeting in that city, now in a favourable train for completion; and submitted for the approval of the Council the programme for the occasion.

Implements.—Colonel Challoner, Chairman of the Implement Committee, reported the progress of the arrangements in connection with the various topics referred to the Committee by the Council.

Warwick Meeting.—The Mayor of Warwick having transmitted to the Council the agreement signed by himself on behalf of that Borough under the great seal of the corporation, the Council authorised the Secretary to sign the agreement on their behalf, agreeably with the special clause of the Charter, and under the great seal of the Society.

Adjourned to June 9th.

A Weekly Council was held on Wednesday, the 9th of June: present, Lord Berners, President, in the Chair, Duke of Marlborough, Hon. Colonel Nelson Hood, Hon. William George Cavendish, M.P., Mr. Raymond Barker, Mr. George Davey, Mr. Dent, M.P., Mr. Garrett, Mr. Glegg, Mr. Hancock, Mr. Holland, M.P., Mr. Fisher Hobbs, Mr. Majendie, Mr. Mundy, Prof. Simonds, Mr. Burch Western, and Mr. Wilson, of Stowlangtoft.

Prize Essay.—Mr. Thompson, Chairman of the Journal Committee, reported the following adjudication:—

> To Edward Bowly, of Siddington House, Cirencester, the prize of £20, for his Essay on the Management of Breeding Cattle.

Communications were received: — 1. From Mr. Samuel Osler, of Great Yarmouth, transmitting a specimen of Fish-guano. 2. From Mr. Hartley, of Lille, transmitting a specimen of the Sorgho Plant, used in the North of France as green food for cattle. 3. From Mr. Bright, of Teddesley Park Farm, Penkridge, reporting the successful application of steam cultivation. 4. From Mr. Bartholomew, of Wapping, controverting the received opinions of Veterinary Professors on the condition of the hoof of the horse, in motion and at rest. 5. From Dr. Voelcker, giving the names and addresses of merchants from whom the specimens of Cotton-cake analyzed by him had been obtained, namely, the first from Messrs. Grieves and Co., of Mark-lane, London (price £7 5s.), and the second from Messrs. Baty and Searight, of Liverpool (£6 10s.). 6. From the Baron de Cetto, Transactions of the Royal Agricultural Society of Bavaria; and 7. From Prof. Way, a copy of the Preliminary Report of the Sewage of Towns Commission, of which he is a member.

Prof. Simonds, the Veterinary-Inspector of the Society, delivered the first part of his lecture on the Composition of the Blood, and the Diseases with which it is connected, illustrating the details of his explanations by means of coloured diagrams on a large scale. On the motion of Mr. Henry Wilson, seconded by Mr. Burch Western, the best thanks of the meeting were proposed to Prof. Simonds for the clear, luminous, and interesting lecture he had then delivered; and the motion, being put to the meeting by his Grace the Duke of Marlborough, was carried unanimously.—Pref. Simonds will deliver the concluding part of his lecture on the 16th June.

A Weekly Council was held on Wednesday, the 16th of June: present, Colonel Challoner, Trustee, in the Chair, Hon. Colonel Nelson Hood, Hon. Wm. Geo. Cavendish, M.P., Mr. Caldwell, Mr. Humberston (Mayor of Chester), Mr. Parkins, Professor Simonds, Mr. Burch Western, Mr. Wilson (of Stowlangtoft), and Mr. Reginald Wynniatt.

Sir Emerson Tennent communicated to the Council, from the Board of Trade, a series of queries on the subject of drainage, received through the Foreign Office from the French Government. The Council took these queries into their consideration, and postponed the completion of the replies to be sent to them until the following week.

On the motion of the Hon. W. G. Cavendish, M.P., seconded by the Hon. Colonel Hood, the second part of Professor Simonds's lecture was postponed for a fortnight in order to give the members of the Society an opportunity, by more extended notice, of being present at its delivery.

Adjourned to June 23.

THE CULTIVATION OF BEANS.

The philosopher who warned his disciples to "abstain from beans," never calculated on having followers in agricultural England. Not that we mean to say the rare old Hampshire dish of savoury, pink-skinned, green-fleshed "broad beans," and the greasy accompaniment of "bacon," are being anywhere vituperated against. No. But there is one sort, the winter bean, that has unluckily earned a bad name; while, indeed, beans in general are hardly cultivated to the extent they might be.

Now in a cyclopædia, prize essay, or calendar of operations, it is usual to find beans and peas treated of together as "pulse crops;" but excepting on comparatively light or loamy land, where the management is much the same for both, there is too great a difference in the preparation of the land, the time and manner of sowing, the after-management, and, indeed, in the place and purpose of the bean and pea crops in the rotation, to admit of the same "directions" being sufficient for both. And no description of corn is grown in a greater variety of ways than the bean. We not only have the two distinct sorts of "winter" and "spring" beans, but they are sometimes cultivated as a fallow or cleansing crop; sometimes for the sake of the produce only. On heavy lands they occupy a regular place in the rotation, next in importance to the wheat. On light land they are frequently only a catch crop in lieu of roots; and they may be grown upon trenched or newly-deepened land, where wheat would fail. No grain is put in by so many methods—dibbled on the whole furrow, dibbled in worked soil, dropped from a barrow-drill and ploughed in, drilled or dibbled on lands or stetches, on the flat or on the top of "ridges," or "drills" like those for turnips; ploughed and manured for, before winter; and a seed-bed scarified, or merely harrowed for, in spring: or else all deferred till the time for sowing. In harvesting, also, are used different tools; and finally, for thrashing, is needed a differently-constructed machine from those used for any other crop.

There is much testimony in favour of the winter bean, which branches more than other sorts, and in proper seasons yields a large produce, ripening very early, it allows of a crop of late-sown turnips or rape afterwards, or at any rate gives abundant time for cleaning for wheat. But in districts where harvest is late, there is often too much autumn-cleaning to do, to permit of ploughing for beans until the winter is far advanced; hence, also, the difficulty of carrying out what is certainly the most rational system of preparation for spring beans—autumn-ploughing-in the manure, and simply grubbing or harrowing to a tilth at the frequently wet sowing-time. Winter-beans should be sown on land that is in a clean state, as the early autumn-ploughing assists the spread of couch more than the late ploughing given for spring beans. So that if the object be to grow a cleansing crop, choose spring sowing; and, indeed, the success of winter beans is not such as to warrant our hindering a wheat-seeding for the sake of getting them in.

Beans usually follow a white-straw crop; therefore, having forked-out beds of couch, &c., from the stubble, cart on manure during the winter, and spread and plough it in. The soil absorbs the products of the decomposing manure, is rendered more porous and friable as well as rich, and requires a mere stirring with the cultivator, or perhaps only heavy harrowing, at seed-time. It is a common thing in the thoroughly "bean" districts to plough twice in the spring; but so much trampling by horses, in vain endeavours to pulverize the stiff solid furrow-slices always turned up after the rains, is condemned by common sense as likely to render the land unsuitable for the growth of the plants, and, by hardening when the dry weather comes, to impede the hoeing. Besides, if the beans are to be a cleansing crop, and horse or only hand-hoeing be freely used, we need not prepare more than a sufficient tilth for the young plants; and when they have come above ground, and during almost the entire period of their growth, we can pulverize the soil and feed them by hoeing, while we at the same time destroy the weeds. Drilling across the furrows, and harrowing afterwards to cover the seed, is practised with great facility and advantage; the coulters cutting the slices partly into pieces, and keeping themselves clean. Of course, first-class drill-men, or what is better, a steerage drill, are needed to preserve the distances of the rows with accuracy.

The most common, expeditious, and easy method of putting-in beans is certainly with the drill; which plan may be considered as applicable to all soils and seasons. Why has so much pains been taken to dibble this crop; and why have so many ways of sowing been devised, that are never thought of in connexion with any other grain? Ploughs have been made with a little drill attached to the beam, to drop the beans in the furrow; barrow-drills, run along by hand; dibbles and dibbling machines employed; and beans have also been sown broadcast and ploughed in.

When the ground is pretty clean, and horse-hoeing is not required, the rows may be 12 or 15 inches apart; but a very common cause of deficiency of produce is drilling too closely: the beans will flower from top to bottom, if we only give them space for the admittance of light and air—and it is flowers and pods, not straw, that we want. We have frequently grown crops of beans having stalks six to eight feet long, and with a small yield of corn; and we believe it is as much the truth of beans as of other grain crops—if you practise thin-seeding take care that you have plenty of seed *in each row*, but let the saving of seed be in having the rows widely apart. You thus secure regularity and sufficiency of plants, while great space is provided for their full development.

But one of the most valuable uses of the bean crop is for enabling land to be cleaned or foulness kept in check by horse-hoeing, while at the same time a profitable yield of grain is obtained. In single rows two feet apart, or in double rows one or less than one foot apart with two-feet intervals between, beans are horse-hoed or skeleton-ploughed, and, when in full flower, moulded-up by the double-winged plough as potatoes are, to prevent lodging and loss of corn.

The subject of wide intervals between the rows of all sorts of cropping is so extensive that we shall devote a paper to some circumstances bearing upon it. Meanwhile, we record it as our opinion that the drilling of beans at very broad distances, and pursuing a system of tillage between, is not nearly so generally adopted as it might be with very great success. We have seen winter beans *in single rows five feet apart* yielding fifty imperial bushels per acre; the manuring, of course, being very high, the tillage exceedingly deep, and the hoeing followed up with frequency. And yet there are persons who are sceptical as to the possibility of so few rows being able to contain pods enough for such a magnificent yield.

LANDLORD AND TENANT.

SIR,—The anomalous and insecure position of the tenant farmer, as regards his relationship with his landlord, is greater than is generally known or may be believed. It is thought by those not intimately acquainted with the agricultural interest that the farmers are a contented well-to-do class of men, who cultivate the farms they occupy with as much spirit and skill, and with the same confidence in the security of their investments, as if the land was their own. To talk of the insecure position of the tenant farmer to some people would be treated as a ridiculous idea; yet bold as the assertion may seem, there is no class of the community who live more upon sufferance, who are so shackled in the exercise of their avocations, and who have so little security for the amount of capital which they may invest in the cultivation and improvement of the land, as the tenant occupiers of this country.

The tenure under which the farmer holds his land is for the short period of twelve months, and a tenancy of this nature is contingent on six months' notice to quit or of quitting. This is the mode of tenure under which, I may venture to say, 99 farms in every hundred are held; and can such a system, I would ask, be calculated to make the cultivator of the soil that *independent* being he is—*ironically*, I presume—called? or is it a system that is likely to induce him to invest his capital and employ his energies in the permanent improvement of the property of which he is but the occupier for the limited period of twelve months, and of which he may be deprived even at six months' notice on the will or caprice of his landlord or his landlord's agent? A tenant "at will," as a yearly tenant is denominated, and not inappropriately, may under some landlords feel himself safe of continuing upon his farm as long as he lives, provided he cultivates his land in a creditable manner, and is content to plod on in the "even tenour of his way," careful to give no offence to his landlord or those under him. This feeling too may be entertained by tenants under a good and liberal-minded landlord, who takes an interest in the comfort and well-being of his tenants, and who does not leave the absolute management of his estate to creatures who,

> " Dress'd in a little brief authority,
> Play such fantastic tricks before high Heav'n
> As make the angels weep!"

But even under the most favourable circumstances the position of the tenant-occupier is not the *less insecure* or the *less dependent*. A tenant "at will" is in continual fear of doing or saying something which might not accord with the views or meet the approbation of his landlord, or more especially his landlord's agent or sub-agent; and though he may not altogether sacrifice his independency of opinion or action, his own self-interest will induce him to be guarded in the expression of the one, and perhaps prevent him from the exercise of the other. The limited tenure of his holding, which he may for many reasons be anxious to retain, naturally renders him more or less subservient to the wishes and caprices of the "powers that be." And no matter whether we take the tenant-farmer in his position as an occupier, a parishioner, or a politician, he is equally dependent, or if not dependent, he is at least constrained in his opinions and acts.

It is, however, more with regard to the insecure position of the farmer as an occupier, that I wish to treat upon. The conditions upon which he holds his farm are such as must necessarily prevent him from embarking his capital to the extent which he might under different circumstances feel disposed to do, in cultivating the land to the best advantage There is a wide difference between the investment of capital in ordinary commercial transactions, and in the permanent improvement of land, &c., by a tenant occupier. In the former case the employment of capital is temporary, and left to a person's own judgment and discrimination: the risk is his own, the profit his own. In the latter case its employment is a matter of contingent speculation, and for which no commensurate return can be expected for years, besides the uncertainty and insecurity of the tenant's occupancy. Thus it is that a farmer who holds his land from year to year, and is subject to six months' notice to quit, is deterred from investing his money in any permanent improvements. His practice is—I am now speaking generally—to expend no more than he can see a reasonable prospect of a return, in the event of his having to quit his occupation and can he be blamed for his carefulness and caution? The agriculturists have been censured by certain parties, as slow to adopt improved systems, and as not progressing so rapidly as they ought in agricultural perfection. But if such be the fact, which in part, at least, is open to question, is it owing to the want of knowledge, capital, and enterprise on their part, or to the short and precarious tenure under which they hold their farms? I admit at once, that the energies of the English farmer, taking him as a class, have not been brought to bear to the extent which may be desirable upon the cultivation of the soil, nor will they ever be under the present system of occupation from year to year. What the farmer wants is a more lengthened tenancy than twelve months, and more enlightened and liberal covenants. Under a yearly occupancy he has no fair prospect of remuneration for his outlay, and consequently he tries to make the most of the land for the time being. What he puts-in one year, he, like a sensible man, takes out the next, knowing full well that unless he steers his course tolerably clear of the "breakers a-head" in the shape of agents and sub-agents, he is the tenant one Lady-day, and kicked off the farm the next. As regards liberal covenants, that is a concession which the farmer must not expect under a yearly tenancy. A short tenancy and stringent agreements are inseparable. Coercion and liberality cannot go hand in hand. A "tenant-at-will" is simply a tenant on sufferance; and it is beyond the bounds of common sense to suppose that he can have the same inducement to properly cultivate, much less to permanently improve, the property he occupies, as he would if he had an interest in it for a longer period. Hence, too, the precaution, under the existing system of annual tenancies, of stringent agreements—necessary perhaps for the security of the landlord against a designing tenant deteriorating the land or premises; but operating most injuriously against an honest man, who takes a farm, as he does his wife, "for better for worse," and who has no higher ambition than to live respectably, and keep his home.

The importance of the farmer is not fully recognised either by his landlord or by the Legislature. The interests of the landlord and the tenant are identical, yet no legislative provision exists for the protection and security of the latter. He may expend his capital in building, in drainage, and the general improvement of the land he occupies, and enhance its value from 10 to 100 per cent.; yet in the event of his leaving, either voluntarily or compulsorily, the law will give him no claim, no compensation for the improvements effected. It is true that for labour and management applied to the land the "custom of the country," not the law, will allow him to be reimbursed; but the settlement of valuations between landlord and tenant is invariably attended with difficulties and delays, owing in a great measure to the want of a legislative enactment as to the legitimate claims of the latter, and too frequently gives rise to the worst of feeling, by each party trying to take advantage of the other. The remedy for this anomalous state of things as regards, the tenant occupier, is more security, by a longer tenancy than from year to year, and granting him a legal claim for all permanent and unexhausted improvements he may effect, under certain conditions, during his tenancy, and in the event of his quitting at the end of the stipulated term. One important result of this would be, that his capital and enterprise would be applied to increase the productive qualities of the land, and to make it as remunerative as skill, industry, and science could do. This is not all; for, instead of the tenant farmer living, as he now does, more or less on sufferance, and being to a certain extent, in a political sense, "a cipher in the great account," he would become a useful and an independent being in the great social community, and exercise, without fear or restraint, the rights and privileges to which every Englishman is justly entitled.

I am, sir, your obedient servant,

A NOTTINGHAMSHIRE FARMER.

June 9th, 1858,

DUMBARTONSHIRE CATTLE SHOW.

The annual show of the Dumbartonshire Agricultural Society took place on the 15th June. The Society embraces the whole of Dumbartonshire and part of the counties of Renfrew and Stirlingshire.

The competition was not so well sustained as in previous seasons, the number of animals shown being rather under that of former years; but in several of the classes of Ayrshire stock the competition was well sustained. The cows were unequal, and few very superior animals were shown; the number of cows was upwards of fifty. In the classes for queys the animals were somewhat coarse, and were inferior to the cows. In the classes for bulls, the show in the class for those from three to seven months old was excellent, several good animals competing. In the class for two year olds, the bulls were unequal in quality, but the prize animals were good. In the class for aged bulls, only four animals competed; they were only of medium merit. In the several classes for bulls, twenty-three bulls were shown.

The show of horses was not extensive, and few superior animals competed. Several of the brood mares were of good frames, but were blemished—the knee, hock, and pastern joints being injured. The show of young horses was of fair average quality.

In the sheep classes the show of Leicester sheep was not extensive. In the classes for Blackfaced the exhibition was very superior, particularly in the classes for tups. The whole of the Blackfaced were shown in the wool—certainly a questionable proceeding at the season of the year. We would suggest to the Society the advisability of showing in and out of the wool, the sheep being shorn in the show-yard. Premiums for the best shearers of sheep could with advantage be offered to the shepherds of the district embraced by the Society.

JUDGES: *Cattle* and *Horses.*—Lawrence Drew, Esq., Merryton; John Macadam, Esq., Blairour, by Drymen; and Robert M'Allister, Esq., Ascog, Rothsay. *Sheep.*—John Macfarlane, Esq, Faslane, Garelochhead; Archibald Clark, Esq., Inverchapel, Dunoon.

The following is the list of successful competitors in the various classes:—

AYRSHIRE STOCK.

Milk cows, in milk, not less than four years old—1, Robert Hamilton, Tillichewan; 2 and 3, John Houston, Geilston.

Milk cows, in milk, bred in the district, not less than four years old—1, Duncan Macfarlane, Torr; 2, James Maconchie, Dumbain; 3, James Moncur, Bowling.

Milk cows, three years old, calved or near calving, (calculating from or after the 1st January)—1, John Houston, Geilston; 2, James Maconochie, Dumbain; 3, Allan Snodgrass, Mollandow.

For three best cows—1, Duncan Macfarlane, Torr; 2, John Houston, Geilston; 3, James Maconochie, Dumbain; 4, Allan Snodgrass, Mollandow.

Single two year old queys, calved or near calving—1, John Houston, Geilston; 2, James Rennie, Kessington; 3, James Moncur, Bowling.

Milk cow, with two of her offspring; offspring not less than one year old—1 and 2, Duncan Macfarlane, Torr; 3, James Moncur, Bowling.

Cows near the calving—1, 2, and 3, Duncan M'Farlane, Torr.

Bulls from three to seven years old—1, George Paton, Bankhead; 2, Alexander Lindsay, Mollandbowie; 3, George Kinloch, Nether Dalquhurn.

Bulls over eighteen and under thirty months old—1, George Paton, Bankhead; 2, James Calder, Colgrain; 3, Allan Snodgrass, Mollandow.

Bulls under eighteen months old—1, John Smith, Highdykes; 2, James Rennie, Kessington; 3, James Maconochie, Dumbain.

Single two-year-old yell queys, bred by the exhibitor; quey not to calve before 1st January next—1, Malm. Cowbrough, High Craigton; 2, Alexander Lindsay, Mollandbowie; 3, Allan Snodgrass, Mollandow.

Single quey, under eighteen months old, and bred by the exhibitor—1, Allan Snodgrass, Mollandow; 2, Robert Brown, Aitkenbar; 3, James Maconochie, Dumbain; 4, Alexander Lindsay, Mollandbowie; 5, James Maconochie, Dumbain.

For three best stirks, all bred by the exhibitor, a sweepstakes of 5s. each lot; two-thirds to the best lot, and one-third to second lot—1, James Maconochie, Dumbain; Allan Snodgrass, Mollandow.

HORSES—CLYDESDALE BREED.

Draught brood mare, with not less than two of her offspring, a sweepstakes of 10s. each lot—Peter Macaulay, Blairennich.

Draught brood mares with foal at foot, or near foaling—3, Robert Morton, Dalmuir; 2, William Park, Balquhanran; 1, Robt. Hamilton, Tillichewan.

Draught yell mares for agricultural purposes—1, James Hay Law, Duntocher; 2, David Riddell, Kilbowie; 3, Peter Macaulay, Blairennich.

Draught fillies two year old—1, Robert Morton, Dalmuir; 2, James Traquhair, Cairneydrouth; 3, Allan Meikle, Ballagan.

Draught fillies, one year old, and bred in the district—1, Wm. Park, Balquhanran; 2, John Smith, Highdykes; 3, Robert Brown, Aitkenbar.

Entire colts for agricultural purposes, foaled after 1st January, 1856—1, John Glen, Blairaddick; 2, Jas. Calder, Colgrain; 3, D. Riddell, Kilbowie.

Entire colts, for agricultural purposes, foaled after 1st January, 1857—1, Wm. Park, Balquhanran; 2, John Govan, Mains; 3, W. Turner, Gavinburn.

SHEEP.

Leicester tups of any age—1 and 2, Messrs. Turnbull, Milnburn.

Two Leicester ewes of any age—1, Peter Lennox, Kirkton; 2, Messrs. Turnbull, Milnburn; 3, Peter Lennox, Kirkton.

BLACKFACED SHEEP.

Pen of five ewe hoggs, bred in the district—1, Wm. Turner, Gavinburn; 2, John Phillips, Laighpark: 3, Malm. Cowbrough, High Craigton.

Prizes offered by Highland and Agricultural Society.

For the best tup of any age, belonging to a proprietor or factor—The silver medal to Wm. Turner, Gavinburn.

For the best tup of any age—1, Wm. Turner, Gavinburn; 2, Robert Filshie, Muirhouses.

For the best two shearling tups—1 and 2, Malm. Cowbrough, High Craigton.

For the best pen of five ewes, not less than two shear—Wm. Turner, Gavinburn.

For the best pen of five gimmers or shearling ewes—John Phillips, Laighpark; claimed also by Wm. Turner, Gavinburn

THE JUDGES OF OUR AGRICULTURAL SOCIETIES—THEIR DUTIES AND RESPONSIBILITIES.

I have for many years derived great pleasure from reading the various accounts given of the proceedings of our agricultural societies, and the reports of their numerous meetings held in every part of our highly-favoured country. They are often highly interesting to the general reader; but to the agriculturist, who delights in noticing the progress of agricultural science, and who lays himself out to forward the great modern improvements in its practice, they are intensely so. Besides, they are, and have long been, amongst the greatest blessings and benefits enjoyed by this kingdom; for it is no fiction to say that, under the stimulating and encouraging influences of such societies, the supply of human food, the value and amount of the landed productions of the country, have been astonishingly increased; and that these are still undergoing vast accessions, both in weight and quality, for the sustenance and comfort of man and beast, is manifest to all. It must have struck the most casual observer that we are indebted in a great measure, for the fullest, for the true success of these meetings, to the *gentlemen who are called upon to act as judges* on these occasions; and as the period is near at hand when the meetings of our leading societies take place, it is my intention to express a few thoughts on their duties and responsibilities as a class. The first thing I would advert to is this—*the choice of judges.* I have frequently cast my eye over the list of judges who have officiated at our principal meetings, and have wondered why the same names should appear over and over again. "Surely, I have thought, "this cannot be right. Why, these men are not the only ones entitled or qualified to set the taste, the shape, or fashion of the different animals, or affirm their value as abreed; nor are they the only qualified men to decide as to the usefulness and economy of the various implements, roots, or other produce, &c., &c., coming under their inspection in the yards and trial-fields." And I have expressed my surprise that more fresh men were not sought out and engaged; but I have been invariably met with this rejoinder: "That really the duties and responsibilities of judges were so onerous, and the difficulties they experienced in arriving at correct and just decisions so great, that it has almost become a matter of course to invite men who have gained, and who enjoy the confidence of the public, and of the exhibitors in the various departments of these shows—men of great experience, sound judgment, comprehensive views, and free from prejudice." This is all right enough, and these are the very men the officers of all societies should endeavour to find—men of independent minds, well versed in general knowledge of the particular classes upon which they are called upon to adjudicate, and the especial claims they put forth for public patronage. I say general knowledge, because their judgment must embrace the widest scope possible. Judges at the Royal Agricultural Society of England's Meetings, or similar meetings, do not adjudicate for particular districts: they take the wide scope of British agriculture. It is only at small local shows where such adjudications can be at all permissible, and then a hundred to one but they are wrong. Judges who possess the highest requisite qualifications, even at these local meetings, will ignore every animal or every implement which does not manifest and combine in a great degree those modern improvements or adaptations which the present age has established as absolutely necessary. In the implement classes this is a very important feature; for, notwithstanding all that has been done or achieved in agricultural mechanics, there are yet many districts in the kingdom, where the rudest implements are still in constant use, and effective economical labour in cultivation almost unknown. The awards of competent judges, even at the local shows, connected with, or being near such districts, should and will tend much to guide the farming public in their choice of implements and machinery best qualified for the most extensive usefulness therein, and thus by their decisions promote and encourage the introduction of a better order of both implements and machinery. I am well aware of the great difficulties that exist in overcoming local prejudices; hence the great value of the migratory character of our great societies, carrying, as they do, their knowledge and their influence into every district of the United Kingdom. It is at these and similar large meetings that competent judges exert such a powerful influence; and therefore is it the more imperative that they should be right men—"right men in right places." No man ought to undertake the important duty of a judge at these shows, unless he is "well up to the mark." If a judge of stock, he ought to possess a minute acquaintance with the lesser things which cause to differ, as well as a correct general knowledge of the precise classes of stock he is called upon to examine and adjudge. The same remark will apply to an implement judge: his knowledge of agricultural mechanics should be very comprehensive and sound, descending to every minutiæ of manufacture in detail; he ought also to be a thorough practical man of business as a farmer, competent to decide upon the real utility of every implement brought under his inspection in actual trial for farm service, carefully discriminating between the workmen's skill in applying the implement, and the capabilities of it in general use. I have frequently officiated in both capacities, and have no hesitation in declaring the duties of an implement-judge to be far more onerous and difficult than those of a stock-judge; certainly requiring much greater attention to minute particulars, and a comprehension of a far wider character—from the gigantic steam-plough to the housewife's apple-parer, &c., &c., including the quality of work performed, with every other gradation of usefulness, economy, and workmanship, in very perplexing variety. The choice of judges, then, is one of the most important in character connected with the management of these influential societies; neither will the breeders of stock or the manufacturers of implements be content to place their credit as exhibitors under incompetent inspection. The utmost care and discrimination should be exercised in making the selection. No motives of friendship or favouritism should for an instant be permitted to weigh in the nomination of a judge; but competency and uprightness should alone constitute the prerequisites.

One word relative to *selected judges*. I have often observed that men who are deemed eminently qualified to undertake these duties, frequently shrink from the task, and decline it. Now this is decidedly wrong. Managers of these societies have great difficulties to contend with in this particular thing; and when men are so honoured, and deemed worthy of being chosen, they ought to accept the office, and do their best to fulfil it as a public duty. No qualms of incapacity or modesty ought to interfere. You would not have been invited, had you not been deemed competent; and the *ordinary routine* of your duties is generally laid down in your enclosed prize-sheet, so that you have merely to inspect and carefully examine the classes brought before you, and simply to decide according to your best judgment. There can be nothing very troublesome or difficult in this, for a man who is competent to fulfil his post. Why, then, do so many, who are truly suitable men, object to undertake these duties? Depend upon it, it is false modesty, or—what is worse—sheer indifference, both of which ought to give way to a far more noble philanthropy. In what a wretched position would the world be, if every man of worth and talent refused to give a portion of his time to the public weal! C. S.

ON THE STOCKING AND MANAGEMENT OF PASTURE LAND.

Time for Stocking.—The time for stocking pastures in the spring depends in great measure on the mildness of the season, the soil, climate, and other circumstances which advance or retard vegetation; for it is evident that to turn stock upon bare pastures would be to the detriment of both animals and land. From the middle of March to the middle of April is the usual time to commence stocking, but for bullocks (especially those which are forward in flesh) it is necessary to wait until a longer bite is obtainable; these latter should not be turned out before the end of April or beginning of May.

Description of Stock.—The description of stock must depend on the quality of the land. In the country round Exeter we should find the handsome breed of cattle called the North Devons, famed for the quietness of their disposition. In Hereford, Salop, Radnor, and Brecon the larger breed of Herefords has the pre-eminence; and in most parts of England the favourites and fashionable breed, the Shorthorns, seem to have monopolized the richest pastures. In sheep, the Leicester, Lincoln, Cotswold, and Cheviot, the South Downs, the West Country, and Dorset are fed in their respective districts. As a rule in grazing, we find the richer the land the heavier may be the description of stock upon it. The only exception I know is that of the Cotswold sheep, which are fatted on hills from 400 to 500 feet above the level of the sea. On the richest pastures, such as those of Buckinghamshire, Lincolnshire, and Leicestershire, cattle can be fatted to more advantage than sheep: the latter do best on fine, short, sweet grass; rank herbage is injurious, and on a rich moist pasture they would be liable to the rot. The former, on the contrary, require a good bite of grass. An old and true saying is that "grass must be twenty-four hours old for a sheep, twelve days for a beast." The first-class pastures are those which can fat a bullock to the weight of 80 or 90 stone (14lbs. to the stone); those which can turn out a beast of 60 stone may be styled second-class; and the third-class are more adapted for sheep or bullocks of a lighter frame, as the Welsh or Highland breeds.

Mixture of Stock.—Many graziers will not allow a mixture of stock in their fields; it is nevertheless a custom very generally adopted. Horses and cattle graze well together, because they both dislike to feed near their own dung. One horse to twelve bullocks on bullock land, and one young steer to twelve sheep on sheep land, are recommended by some as a good mixture. Too many sheep should not be put with bullocks, because in this case the former eat the grass so short, that as the country people say, "the beasts can't lap their tongues round it" to feed themselves to advantage.

Quantity of Stock per acre.—The quantity of stock per acre depends of course on the quality of the land. On the rich pastures near Banbury in Oxfordshire, one ox and two sheep can be fattened. A writer in "Morton's Cyclopædia of Agriculture" says, "Good sheep-lands will fatten heavy long-woolled sheep, five per acre; Lincolns and large Leicesters, six per acre; Hampshire Downs, thirteen to two acres; small Downs, seven per acre; half-bred long-wools and Downs, six per acre; half-bred Leicesters and Downs, thirteen to two acres." Mr. J. A. Clarke, in the Prize Essay on Lincolnshire, states that the superior grass lands near Boston will fatten eight or nine sheep per acre. Mr. Dyke Acland, in his Report on Somersetshire, says, that on the best land in that county a bullock and two sheep are fattened, and in some fields of forty acres the grazier will put 30 bullocks and as many couple of ewes with their lambs. It is a common practice with many people to allow to each of their fatting bullocks four or five lbs. of oil-cake per day, which not only allows of more beasts being kept on the same ground (for five can be kept in the place of four), but brings them to an earlier maturity, gives them that softness and silkiness of skin so much admired by butchers, and makes their manure fully half as valuable again.

Light and Hard Stocking.—If pastures are stocked too lightly, enough profit is not made: if over-stocked, both cattle and land suffer; indeed on some soils by overstocking before midsummer there is danger (if the season be hot) of losing the whole of the summer grass. In this, as in other things, the wisest plan is to take a middle course, shunning the extreme on either hand. Judicious management will prevent the waste of any grass by making store stock, sheep, &c., follow the fatting beasts, for whom, of course, the best pastures are reserved. If the latter are in good condition, when first turned to grass in the spring, six or eight weeks' grazing will, perhaps, render them fit for the butcher. The land they were on may either be kept for a reserve for other stock; or else directly the fatting beasts are removed, it may be crowded with stock to eat the field close as soon as possible, then laid in for a few weeks to freshen, after which a second lot may be fattened.

Quick Land. — Sometimes grass grows so rapidly that it is found necessary to put as much stock on the land as it can well carry; this is often the case on what they call the "quick land" in Romney Marsh, Kent, where they depend mostly on sheep. It is there customary, when the grass shows symptoms of running away, to buy or hire a sufficient quantity of stock to keep it down; but we must notice that this extra stock must be removed as the summer declines, to keep the pastures in good order.

Winter.—As November approaches, the grass begins to lose its nutritive quality. If the season is wet and cold, a little good hay given to fatting bullocks in the morning will do much good in preventing scouring, &c. Soon after the month comes in, according to the season, they should, if not fat, be taken into the stall, and finished with corn or cake. The lean stock are now put into the straw-yard, and the pastures cleared of all but their winter stock (often the breeding ewes); other sheep are usually by this time on turnips or coleseed. About the middle of January the pastures intended for early stocking should be cleared, but meadows need not be "laid in" until May.

Size of Enclosures.—With regard to the size of enclosures, it is well known that stock do better in small fields than in large. Mr. Nicholls says ("*The Farmer,*") "The English graziers have found that five enclosures of ten acres each will feed as many cattle as sixty acres within one fence."

Water.—A supply of pure water is necessary to the well-doing of stock. When bullocks drink from a pond it should be hurdled round, to prevent them spoiling the water with their feet and dung; a tub may then be placed outside the hurdles, which can easily be filled from the pond, or else two posts and a rail may be placed so that the cattle can get their heads to the water without being able to stir up the mud.

Shade.—Shade too is very beneficial, particularly to cattle, who should never be without it where obtainable.

Posts. — Where there are no trees, rubbing-posts should be set up in the fields, to prevent the use, or rather abuse, of gates and fences. The Rev. Sidney Smith, of facetious memory, used to pride himself on what he called "a universal rubbing-post" of his own invention, equally suitable to beasts, horses, and sheep.

Droppings.—The droppings of cattle should be carefully knocked about from time to time; the neglect of this makes the grass to grow coarse and in tufts. I have heard of people who cause them to be collected every day from their pastures, which necessarily therefore require a periodical dressing of manure. I should not think the increased produce would pay the expenses of collection and distribution. Once every year, at least, the pastures should be closely fed off. This gives the finer grasses an opportunity of coming up, and makes the whole herbage sweeter. A good time for this is after the heat of summer. Brushing the pastures with a scythe is done to answer the same purpose, and the cattle will soon pick up what is thus cut. The same reason—that of getting rid of the old grass to make room for the new—causes the squatter of the American continent to fire the prairies.

Moles and Ants.—Some of our wise ancestors used to encourage moles and ants in their pastures, under the delusive idea of getting more land for their money. This, with its kindred notion of cutting crooked channels for water, has now gone out of fashion, and we slaughter the little "gentleman in black" whenever we find him, in spite of his instructive lesson to Mr. Hoskyns. Ant-hills should never be allowed. If they cannot be kept down by rolling every year, the operation called gelding should be performed, thus described by Loudon (*Encyclopœdia of Agriculture*): "With a turfing iron make two cuts across the hill at right angles to each other; then turn back the four quarters thus obtained from off the hill, leaving it bare. Next cut and throw to a distance the interior earth of the hill, with all the ants, their eggs, and winter's store of provision. Now return the quarters of turf to their places, treading them down to form a basin to hold the winter's rain, which will prevent a new settlement of ants, and they being thrown to the surface will perish by the frost."

Weeds.—Weeding should be constantly attended to; docks and suckers from trees or hedges pulled wherever seen; thistles should be spudded below the crown, or pulled with tongs if the ground is moist enough. Farmers are generally too careless in allowing weeds to flower in their hedge-rows. Thistles are biennials, but they flower and seed very quickly, and the wind disperses the seeds a long distance from the parent weed. Hedges should be weeded as carefully as the fields they surround. Moss is sometimes very troublesome on old pastures. There is nothing better than to harrow well, and administer a good dose of lime and salt. Rushes ought not to be permitted; they generally show the want of draining. When that necessary work is done, mow the rushes, and apply 50 or 60 bushels of wood ashes per acre, if obtainable.

Breaking up Pastures.—The practice of breaking up old and worn-out pastures, and after a year or two's cropping laying them down again, is often attended with much benefit; it should not, however, be done too rashly, as grass takes many years to form a new bottom. In lieu of breaking up, some people sow a good mixture of grass seeds in spring, which brushed in with a slight top-dressing of artificial manure will sometimes renovate the face of the pasture.

Draining.—Pastures should be well-drained where the soil requires it. There are many old grass fields in the country, covered with rushes and coarse herbage, which if drained and manured would increase in value three-fold. Surface drains or "gripples" are sometimes used, where the subsoil is porous. Although cheaper, they are not nearly so effectual as underdrains, and sheep are liable to get cast in them.

Manure.—It is imagined by some people that pastures have no need of manure, except that left by the cattle which consume the herbage. But the question ought not to be "whether the land will do without additional manure," but "whether such manure will yield proportional profit;" and I believe on most pastures an occasional top-dressing would be advantageous. Lime is an exceedingly good mendment, particularly where the soil is deficient in calcareous matter: it destroys the coarser grasses, and produces in their place white clover and other fine grass. In Cheshire some years ago, the pastures that graze the dairy cows were found to be sensibly deteriorating in value: the dung left by the cattle did not seem to supply the necessary element that was wanting. A chemist was appealed to, and he happily suggested that as phosphate of lime was continually being removed in the bones and milk of cows, any manure that contained that ingredient might be found beneficial; hence they first crushed bones, which had the bi-fold result of improving both the quantity and quality of the herbage to a remarkable degree. On poor pastures lime, guano, and salt, wood ashes, chalk, soot, super and nitro-phosphates of lime have been used to great advantage. The bush-harrow and the roll are often of great use in pasture as well as in meadow ground.

In conclusion, I would say, that in no branch of farming is more industry, skill, and perseverance required than in grazing. Great judgment must be used in selecting the description of animals most suited to the soil, the number that can be conveniently carried by the land, and the most economical way of disposing them: constant attention must be paid to watch the first unfavourable symptom, to change the food of the herd as often as required, and to make the land produce as much beef, mutton, and wool as possible, at the least expense, in the shortest time, leaving the land in the best condition. I. R.

THE BATH AND WEST OF ENGLAND SOCIETY.

MEETING AT CARDIFF.

Modern agriculture has this year resolved on a thorough invasion of the Principality. Acting as it were by some skilful arrangement, the two great leaders of her forces attack the country from the cardinal points of North and South. During next month the Royal Agricultural Society of England will lay siege to Chester, while the West of England Association has already opened the campaign at Cardiff. Fully armed and prepared for such an encounter—with all the aid machinery can afford, backed by an ample store of beeves and other provision, such an onslaught is not easily to be withstood. Acting more, however, up to her professions than many great Generals, Agriculture comes really to benefit those plains she encamps on. The people, gradually appreciating her motive, gladly take her at her word; and a wave of welcome announces a victory, that either side should lay equal claim to.

In thus extending the range of its operations, no one will say but that the West of England Society was well advised. It is, indeed, its especial privilege to be so. Cardiff was just the place to break fresh ground on. With its mineral wealth, its increasing commerce, its home and outward traffic, Agriculture has come to occupy here anything but the position that in these times it should do. With many facilities of site, a certain rough energy in its people, and plenty of spirit amongst its leading men, the district still needed some little stirring up. The voice of authority was wanting to show how far the land was good, and in how much deficient. This has at length been supplied, and an impressive lesson read that can never again be forgotten.

In selecting such a place of meeting, the aim of the Society can only be considered as most patriotic and commendable. The advantage from the outset would be clearly with those it visited. It was not a neighbourhood to make "a great show," in the now common acceptation of the term—that is, one better than ever it has been. For many exhibiters and true followers it was quite "out of the way." And this we have to record as the general character of the week's proceedings. As a gathering of "the West of England" the exhibition was clearly below the average of its regeneration. There was scarcely a description of the more important breeds of stock, as well represented as they have been. Or, if one or two did excel, this was mainly owing to local support, rather than to the associated strength of the Society's dominion. Again, the implement business was by no means attended with the customary bustle and interest. But there may be more reasons than one for this; and a certain slackness and misunderstanding at Cardiff might have come to pass, had the battle been fought in the Vale of Taunton, or on Bristol Green.

Still, every one who serves his country must be prepared to do so at some self-sacrifice. It is the same with an institution; and this one, we repeat, deserves every credit for its passage into Wales. If there be any to blame—as, moreover, any to suffer, for a short show at Cardiff, it will be those, who in their absence, conduced to such a result. A man whose name is not continually before the public is soon forgotten; while nothing tells stronger than a first impression. Here, then, was the opportunity for opening a new connection, and for the further advertisement of "a good article." And it all ended in this wise:—The show of Shorthorns was moderately good; that of Devons decidedly inferior; and the entry of Herefords, with what it often has been, very good indeed. Perhaps this was to be expected. Still the great moral of such a meeting is lost by the other breeds not being sent in greater force. The Welsh farmer will go home again convinced there is nothing to beat his old favourite, the Hereford, after all. And by the experience of this week he is right. Whereas there are many parts of Wales in which the Devon might be introduced with every promise of success. But the great men do not care about this. Neither Mr. Quartley nor Mr. Turner had an animal on the ground, and it is thought some who did send, had better beasts at home. What has helped to make the fame of the Shorthorn? The *system* by which he has been pushed on from one district to another. It will never pay to keep all the best at home.

Still there were some beautiful Devons at Cardiff, and conspicuous amongst these stood those in the name of a new exhibitor, Mr. Merson, of Brinsworthy. His two-year-old bull was the pride of the entry; fine in quality, thoroughbred in appearance, and a very model for the mould in form. His prize cow, again, headed a class that, as a whole, was far better. It is indeed difficult to speak disparagingly of a Devon cow, and the spectators at Cardiff were quite willing to allow them all the merit their good looks entitled them to. Captain Davey, and a namesake, Mr. Davey of Flitton, stood also more or less distinguished here. The latter was thought to have been hardly used in the heifer class; his entry being generally considered the first, and not as placed, only the second prize. It is bad taste, however, not to say dangerous work, quarrelling with the judges; and we have heard of an instance during the week where an exhibitor personally abused the *one* judge of the three who had long stood out in favour of his own beast! Of course the one did not know this when he was venting his wrath, and the other had too high a feeling to tell him. It shows, though, how unwarrantable such attacks are. As Mr. Smith truly said at the dinner, the judges see the stock under many other circumstances to what the public do, and there is scarcely an animal of any kind but that shows very different out and in. Some stand "all of a heap," and others, like a dealer's horse or a well-drilled man, make the most of themselves anywhere.

If the Welsh should have a leaning for anything beyond their own mountain breeds, or white-faced neighbours, it should be for the Shorthorn, and for this reason—Adjacent to both Cardiff and Newport lives Sir Charles Morgan, who occupies a somewhat similar rank in the South to what Sir Watkin Wynne does in North Wales. Every year there is a very good meeting at Tredegar, prominent at which gatherings are the baronet's own well-cultivated Shorthorns. Strange as it may sound, Sir Charles was not, we believe, at Cardiff during the week, nor does he appear to have taken much interest in what was going on there. He certainly entered a few cows, but these were, of course, at the mercy of Mr. Stratton, in whom the shorthorn show of the West of England Society is coming more and more to centre. His second-prize cow at Newton—second to her own mother—was the first here; while a roan, that stood beside her as second, was thought to be almost as good in appearance, and is certainly so in pedigree; for the two are out of the same cow. They were a magnificent pair; and as specimens of the sort, ranked well with Mr. Perry's couple of Herefords, which stood equally distinguished. Next, if not superior to these in excellence amongst the Shorthorns, were the shown-in-pair heifers, also from the Hinton Herd. The red heifer, "Bee," was taken with Lord Bateman's Hereford bull, Mr. Merson's Devon, and Mr. Blakemore's pony, as the lions of the show. But even Mr. Stratton's own name is not enough here. Mr. Starkey's second-prize cow is of his blood, and many of the other commended animals as directly related to his sort. Without being precisely able to say why, the Durham cows are as a rule better at these meetings than the bulls, and it was so on this occasion. The latter appear to want altogether more style. There were many of them creditable animals, but few quite up to the stamp of a prize Shorthorn.

It was only last week we had to speak to the way in which a show beast is sometimes got-up. Lord Bateman sent a well-known Hereford bull to Cardiff, not improved, but positively disfigured with fat. A finer beast, if in anything like proper condition, it would be difficult to meet with. He has all the grand points of the Hereford, with at the same time a certain compactness of frame not always so characteristic of the kind. But, he had unsightly wells in the back from mere fat; he had ugly patches of it here and there. Mr. Gant would have fainted at the sight of his obesity, while the less initiated laughed at, rather than admired as they should have done, an admirable animal, in all "the splendid misery" of having lived not wisely but too well. To the excellence of Mr. Perry's cows we have already spoken, and there were a pair of yearlings by the prize bull, that made one only the more regret the state he had been brought to. It will be observed that many of the more local exhibiters distinguished themselves as breeders of Herefords, and very deservedly so, too. It is not often one sees so generally a good show of them. The district so far, by no means broke the word of promise.

Another little treat here, and one we are less accustomed to, was to be a show of ponies. Everyone knows the Welsh pony, at least by repute—his safe action, wear-and-tear constitution, good shape, and fine temper. And there was to be a class of such at Cardiff. At any rate there was a series of premiums, although too often ere now these have not commanded an entry. They did, however, at Cardiff. Again the neighbourhood acted up to its character. It was in every way, either for numbers or excellence, the best exhibition of the sort we ever saw; and alone well worth the run down. Such miniature pictures of perfection! Not merely curiosities, like Tom Thumbs or tadpoles, with small bodies and big heads; but *finely-bred* little creatures, with heads like race-horses, the necks and crests of chargers, and the high courage of Arabs. If a man wanted a mount for his son, what would he not give for such a pony as Mr. Blakemore's? Or, to see how proportioned a small animal may be, let him look at Mr. Williams's bay mare—the realization of what a *well-bred* hack should be of any size. Such a head here, again, one rarely finds. And yet it is an old story, that ponies are never good in this wise. Some of our friends say they will bring even better from Exmoor to Barnstaple next year. We doubt it. But, if they do, the West of England Society has a capital card to play with them. These concomitant attractions go a great way; and many people will come to look at a game cock, a smart hack, or a steam-plough, that don't care much about the biggest of bulls, or the squarest of sheep.

But the denizens in these parts have always had a liking for a good horse, be he little or big; and great the sport, in days gone by, over Cardiff Course. The proof comes in upon us here in more ways than one. There were not good ponies only; but a capital class of hunting mares, and some very good two and three-year old colts and fillies. The latter, for a wonder, went almost too much for blood, and looked, as a class, rather light and weedy. They go for a speed here, with Gaper and St. George, the favourite stallions of the country. Many of the mares were themselves thorough-bred, and the Judges rather unaccountably passed over a great fine Melbourne mare of Mr. Cartwright's, that should have been better appreciated. This section of the Show was quite up to the standard; and thanks, once more, to local support. This, again, will be grateful to the Council of the Society. We can see Shorthorns and Devons in most places; but it is not always we can command an entry of Hereford cattle, of good ponies, or well-bred horses.

The draft-horses did not rank so highly; the young stock were altogether but inferior. The season of the year will not allow of a show of Stallions, and the pick of the fair was accordingly with the mares. Mr. Lowrie's first prize is really a splendid animal, with two good ends and something between them; for she was nearly as fat as Lord Bateman's bull. But one yet more distinguished before now, the old Suffolk "Darby," a winner of almost endless premiums, was altogether overlooked. The judges, in fact, ignored the Suffolks, of which sort Mr. Beever, of Cowbridge, sent three or four very well-bred ones. But then, as they were judges of pigs as well as horses, one or the other might have been out of their line. The pigs could not have given them much trouble. There was but a short entry, although a very good one. In the large breed the Berkshires carried all before them; and in the small sorts—a very nice distinction—the reverend Mr. Hodgson maintained the superiority of another black pig, which he calls the Leicester.

"If we compare"—writes Professor, or V. S. Brown, in the new number of the *West of England Journal*—"If we compare the present cultivated breeds with the original hardy mountain-sheep, it requires no argument to prove that domestication has impaired their original strength of constitution, and their power of resisting causes of disease. In fact"—hear this, Mr. Marshall, of Riseholme—"*the tendency to consumption amongst highly-bred sheep is very general.*" Mr. Brown then dwells on "this remarkable debility of the general system among sheep;" while he adds that "the remedy is, fortunately, not remote—our mountain breeds will afford new materials for invigorating the organism, weakened by a too exclusive system of cultivating certain recognized excellencies." Now the feature of the Cardiff sheep-show was this mountaineer—the Exmoor sheep that is—of which Mr. Merson exhibited some extraordinary specimens. They are very active, small only in height, large in breadth, wide in the chest, and with a very capital clip of wool. They really look healthy, and promise to achieve much of what the Professor has just said for them. Although shown in no great numbers, they had quite the call over the other varieties; but beyond them, the sheep were anything but generally good. Mr. Beale Browne, Mr. Handy, Mr. Smith, of Bibury, and Mr. Tombs had the best of it with the Cotswolds, though the entry of this rising breed was not what it has been ere now. The only good Southdowns, those of Sir Robert Throckmorton, were very properly disqualified, for being unfairly shorn. They had over an inch of wool on them. Clipping a bad-shaped sheep into a good one is an old story, but Sir Robert's did not require it; and it is said the shepherd offended in entire ignorance of the rules. However, he will know better next time; and some people, servants especially, take a deal of teaching. The Shropshire and Hampshire Downs—saving only Mr. Harbin's ewes—were few and inferior; and the Dorsets almost as far below high water mark. The home flocks, from the experience of this meeting, will have to look chiefly to their brother-mountaineers, on the other side of the water.

"The Welsh breeds" and other local classes were an utter failure. A native cow, with a back like a razor, and with nothing but skin and bone beneath it, was one of the curiosities of the show. Her entry only further proved how much with some people the lesson was required. Running to the length our lists and reports already do, we can only add that a pet child of the Society—the Poultry Show—was a most successful addition to the attractions of the week. In some varieties it was more than usually strong. The Malays, for instance, made up an extraordinary entry. The pigeons furnished one of the best collections ever seen; Mr. Adkins carrying off the cup, as having the best "cot." The old Dorkings were quite up to their chartered excellence—the single game-cock a very neat bird; and the Aylesbury ducks, as a whole class, very good. Mr. Fowler, of course, had a lead here. The judges, who had plenty to do, were Mr. Hewett and Mr. Tegehuier. The Society has a discreet dislike to putting dealers in office.

An old and well-qualified correspondent will help us out with the record of the implement business. Here matters once more did not run quite so smoothly. There was the disinclination of last year on the part of certain great houses to enter for competition. But this, at best or worst, is an evil that cuts both ways. One of the most intelligent agriculturists of the district, a magistrate for his county, and the chief supporter of a local society, expressed his surprise at what he saw. The prize for the steam-engine was carried off by a comparatively little man, against such firms as Clayton and Shuttleworth, Garrett, Hornsby, and Tuxford, ranged side by side with him! The fact was our Monmouthshire friend had naturally supposed all these had been entered for trial. On meeting one of the judges shortly afterwards, we told him of the mistake. His only comment was, "I hope you did'nt undeceive him; I should like everybody here to think so." It is but right to add, however, that the conditions for the steam engine trials were considered unprecedentedly exacting. There were so many subsequent particulars to be given in, and so much minutiæ to be unravelled, that, with the Great Chester contest before them, the more formidable firms discreetly reserved themselves. Otherwise, the secret must have been out before now; and the interest of the Great Triennial Stake more or less anticipated.

We do not know whether Mr. Fowler with his steam-plough, or Mr. Smith with his steam-cultivator, had any similar cause for their conduct. But both availed themselves of the introduction and influence of the Society, while neither would condescend to enter for the premium offered. Why should Mr. Fowler submit to such a test elsewhere and not here? The Society might have well put the question. As regards Mr. Smith, his would have been just the triumph every one would have sympathised with—a farmer fighting his way on, entirely through his own energy and ability. Nothing, we are assured, could have been fairer than the trials, and nothing better than the behaviour of the Society. We only wish we could speak as decidedly for that of some of the exhibitors. As it is, of course Mr. Fowler says he did very good work, and Mr. Smith that he did capital work; while the prize-list declares that a premium of twenty-five pounds for the best application of steam-power to the cultivation of the land brought *no competition*. We have already quoted the opinion of one of the Judges on this subject; and another gave his a little more publicly. At the dinner, on the Thursday, Mr. Caldwell, in one of his telling practical speeches, regretted the want of more competition. His tone, it will be found, was very moderate, but not the less effective on that account. Some new system—the triennial perhaps—may be under consideration; but, until it be adopted or rejected, we certainly think more respect should be paid to the Society and its intentions.

In addition to Mr. Caldwell, who has just bought an estate near Chippenham, and is now a West of England man, the dinner was remarkable for the number of good speakers drawn out. Mr. Robert Smith, another of the judges, Mr. Acland, the leading member of the direction, Mr. Pitman, and Mr. Jonathan Gray, all went well to the business before them. Lord Courtenay proved, again, a most judicious and able chairman; while a gentleman of the county, Mr. Thomas, relieved the more serious subject matter with a little speech that, for quaint humour and nice telling, it would have been difficult to beat. An American, singled out as "a visitor," was also found quite equal to the occasion. The day previous the Mayor of Cardiff, Mr. Croft Williams, entertained some two hundred neighbours and strangers most hospitably in the Town Hall, where everything was of the best, but the attendance, and that was infamous. Amongst the local supporters of the meeting, Mr. Williams occupies a deservedly prominent position. He has proved himself, indeed, as good a mayor for agricultural purposes as even Mr. Pain did at Salisbury. This is high praise, too; but Mr. Williams honestly earned it.

Every one, in fact, would seem to have done his best here but the railway people; and they by no means over-exerted themselves. They ran very few excursion trains until just the last day. They refused, we believe, certain of the customary facilities in the carriage of stock, and they were thanked twice over by the Society! There certainly cannot be a more courteous set of gentlemen than the Council of the latter; but so much thanks for such small favours reads almost ironical.

We now proceed to

THE IMPLEMENT DEPARTMENT.

We have never attended an exhibition of implements where all the points and details so much accorded with our notions of what they should be. Here was a first-class collection of great agricultural value, and all arranged in the most convenient and attractive way imaginable, thanks to the good taste of the steward of shedding, Mr. Jonathan Gray—a real West of England man of true national type—to whom on this, as on many other like occasions, the Society is vastly indebted. The shedding itself is exceedingly good in quality, and very ornamental. It occupies about 4,200 feet in length, of which 2,200 are appropriated to the use of the implement exhibitors. These sheds have a peculiar appearance, from their lightness and the absence of much of that cumbrous poling and roping so often in the way. One of the great novelties is that their safety is almost insured from boisterous winds by india-rubber fastenings. These sheds presented a very pleasing appearance, as on entering the beautiful yard, at the point chosen for the entrance, the end of every shed was to be seen, and the little gay flags by which they were marked gave a very pretty appearance. Mr. John Gray, of Somerton, officiated as steward of implements, and was most indefatigable in attention to his duties. Mr. Widdicombe, of Fonhill, Wybridge, was the director of the show, and Mr. T. E. Knollys, of Fitzhead, near Taunton, the field steward. We attended most of the trials, and it certainly did strike us that we had never seen the arrangements better, or carried out with greater readiness. No sooner did the judges demand a team or an implement, but it was at once at their disposal. The chief secret of this is in having a responsible man, under the stewards —one who does much to curtail the labours of the field judges. These, again, we learnt, not only at Cardiff, but on most other occasions, at the meetings of the Bath and West of England Society, have been treated with every attention—the best of accommodation, and other creature-comforts liberally provided for them. This is quite right for men who leave their business for many days together, to serve such societies without remuneration. We only hope the Council of the Royal Agricultural Society of England may take a lesson from the manner in which matters were managed here.

Messrs. Caldwell and Wallis, as Judges, took the thrashing machines and other implements for trial in the yard; Messrs. Lister and Scott the miscellaneous department; Messrs. C. S. Read and John Clarke the field implements and their trials; and Messrs. Easton and Gooch the engineering department. The trials commenced on Saturday morning, the 29th of May (Royal Oak day, much observed here), Messrs. Easton and Gooch commencing with the brakes. All being ready the steam-engines were proceeded with, followed by thrashing-machines. This was an interesting trial, conducted as it was by two of our most experienced judges. We are inclined to think highly of the adjudication, which was said to be upon the plan laid down in a letter addressed to the Council of the Royal Agricultural Society of England a few weeks since, namely, the system of points of merit and other details. Mr. Humphrey may congratulate himself upon his distinguished success, upon such sound principles. The Judges put those machines purporting to dress a perfect sample through severe tests; and Boby's celebrated screen proved what everybody knew before, that perfection is unattainable in mundane affairs. The trial of horse-gear, waggons, carts, churns, cheese-presses, cooking-apparatus, together with the above machines, took place on Monday. On Tuesday, chaff-engines, cake-bruisers, and other machines driven by power, as well as miscellaneous articles, were tried both by the above gentlemen, and also by Messrs. Lister and Scott, the results of which will be found in the prize list.

Messrs. Read and Clarke conducted the field trials, and on Saturday they were enabled to get through many of these. The implements tried consisted of cultivators, grubbers and scarifiers, single and double drags, sets of general-purpose harrows, sets of seed-harrows, chain-harrows, clod-crushers, and pulverizers. On Monday they proceeded with the plough trials, both general purpose ploughs and turnwrest ploughs, parers, and subsoilers. On Tuesday they proceeded with horse-hoes, both for ridge and flat work, and hill-sides; turnip thinners, liquid manure drills, and general manure distributors. The corn drills were not tried, but the prizes were adjudged in the yard, as were some others. We were much interested in noticing the judges applying the dynamometer to several field-rollers and clod-crushers, although the grass-field being dry and hard-trodden, no satisfactory result was arrived at. Still, sufficient was shown to prove that those rollers having discs of different diameters worked with less draught than those all of like diameter.

Having gone through these preliminary remarks, we will now take our accustomed walk through the implement yard.

The first thing which attracted our attention, as possessing some new features, was Boby's improved screen. It is fitted with small fixed square plates instead of the little revolvers as heretofore; and, by a very simple adjustment, every alternate wire is made to rise up, so as to make the screen fine or coarse as required.

Coleman and Sons exhibited a selection of their expanding harrows, potato digger, and celebrated scarifier. They also sent one of these implements fitted for steam cultivation.

Cornes had his chaff engines in variety. We noticed, as new, his feeding trough; which, being 13 in. at the feeding end in width, and 16 in. at the further end, thus contracts the feed gradually.

Mr. Bentall had a large assortment of scarifiers shown in variety. He has greatly improved his cake-breaker. By means of a roller under the top rollers, and the application of a plate of peculiar character, the cake can be broken fine at pleasure.

Glidden showed his kitchen ranges. His new roller is commendable.

Hughes and Sons showed some exceedingly good millstones.

Eddy had a capital stand of ploughs, harrows, &c. We thought his plough made good work in the field; but the mole-turner is too long—*i. e.*, 3 ft. 8 in. His harrows are good, as is also his subsoiler. Of the trials we will give a more detailed account next week. We have seldom seen a comparatively new man come out so well.

Huxham and Brow show good millstones.

James had, in addition to his liquid (or water) carts, &c., a chaff engine of remarkable make. It feeds by an endless web, and only when the knife is from it, and will cut at great differences in length. Rather too old-fashioned we thought.

Archer had a good collection of coffee-mills, mincing-machines, apple-parers, turnip-thinners, &c., some capable of cutting two rows at once, and hoeing the interstices at the same time—of which more in field-trials.

Lyon's machine, for cutting raw roots and meat, deserves notice.

Monro & Co. exhibited a number of excellent harvest-carts, with wheels of four and five feet diameter. The four-feet wheels are too low for rutty roads.

We found the forks of Parkes here, as also churns, &c.

Milford had a two-horse waggon and one-horse cart, cheap and good.

Hugh Bird brought the largest and best assortment or collection of implements in the yard; for which he received the prize. We found Howard's ploughs, harrows, rakes, scarifiers, and horse-hoes on this stand in considerable variety, and in all their excellence; the ploughs, to our mind, still standing pre-eminent in form and manufacture. We often wonder why it is that they are not more copied, having, like their respected competitors, Ransomes, so long proved their capabilities for their practical and general utility, and their lightness of draught. Their far-famed horse-rakes and their original patent zig-zag harrows were also here. These we find are essentially copied by most makers, in one form or other; but not excelled by any. We noticed capital whippletrees and good horse-hoes. On this stand were exhibited many of Samuelson's implements, amongst them, of course, his famed Gardner's turnip-cutter, and we particularize this because he has effected a great alteration, and to us it appeared a great improvement, in the adaptation of it as a root pulper, combining the cutting of finger pieces and slices of turnips in two-size slices, and the grating of roots, as also mincing like Bentall's. The nibs for grating are affixed in the hollow of the barrel in front of the cutting-knives. Burgess and Key's reaper was here with all its improvements, of which we need not speak further than to say it worked admirably amongst the green rye, and fully sustained its high standing. Here were the chaff machines of Richmond and Chandler; the drills of Hornsby, of Grantham, and Smith, of Peasenhall; with a great and superior selection from our most popular makers, many of whom have stands, which we shall endeavour to notice if our space will permit, but it must be brief—a bare mention in most cases.

Brinsmead showed his straw-shaker and machine.

Bradley his horse and pig food.

Comins his usual assortment of implements; his curved cutters in his horse-hoe deserve especial notice.

Carson had an excellent stand in great variety: amongst them we observed several deserving especial notice. His plough is much improved, and worked well in trial, as did also his roller or clod crusher, of which more in our trial report. It has a singular adaptation in alternate nibbed or cross-cutting discs running in connexion with the Cambridge discs, but independently. His wrought-iron horse hoe is in the best form for hoeing green crops of considerable growth and without injuring them, and has a movement for adapting it to hill sides. It deservedly received the prize. We did not admire the form of the large pronged cutters.

Moody's turnip cutter is well manufactured by Mr. Carson.

Powis showed his morticing machine.

Cockey and Sons' cheese-making apparatus, garden seats, pumps, forks, &c., in excellent variety.

A. and T. Fry exhibited a large collection of very useful implements and machinery, including waggons, carts, drills, distributors, ploughs, harrows, clod crushers (Paterson's), chain-harrows, rakes, chaff engines, graters, coulters, corn dressers, forks, &c., &c.

We had our attention particularly directed to a plough invented by Cousens, which was tried. It has many points of excellence, but he has made a mistake in the extraordinary length of mole-turner, 4 ft. 9in.: the long turn-furrow is undoubtedly good, but it has its proper limits; to exceed them increases the friction, which was borne out in this instance by the dynamometer—more of this in our trial report. The most remarkable thing on this stand was a model of a coal-loading apparatus, invented by Mr. Mackworth.

Hole's expanding horse-hoe possesses merit.

Lewis exhibited some useful implements.

Lyne's harrows and field stile struck us as very novel and very useful. We must give a short notice of the harrows, which proved well on trial, of which more in our report. The principle received especial commendation from the judges under three phases, as shown by the prize list. The set, &c., is composed of three four-beam harrows (serpentine in form), not connected by cross-bars, but each having a loop on the front end, which is looped and works on a round draught bar, the distance regulated by draught hooks and ferrules; each beam is independent in action, and is kept within limits by couplings behind, without impairing its efficiency. A strengthening bar is attached to one of the sets, which is evidently an improvement. His field-stile excited much attention. It is almost in shape like a lady's open fan. Between the middle bars is a spring, which being pressed, it opens, and closes immediately you pass through.

Milford and Sons showed their excellent prize carts; very strong and useful. Their waggons are good and cheap; the break is a great acquisition.

Morgans shows what he calls hoop waggons.

R. and J. Reeves, as usual, were successful with their liquid-manure drills. They are now fitted with Chambers' drop, and do exceedingly well in trial. The new stirrers in No. 2 we did not like quite so well as the bucket-lifters. They are very effective, as is also their dry-manure distributor, doing much work at a cheap rate, and varying in quantity from 2 lbs. to 100 lbs. per acre.

Pridmore and Son exhibited their corn-dressing machine.

Rowsell his very simple but most useful and cheapest of horse-rakes.

Smith and Ashby took the prize for their celebrated haymaker. They had also their very popular and well-appreciated chaff-cutters in excellent variety, as also their horse-rakes. Their two-horse power steam thrashing machine is useful for small occupations; but we question its utility in a general sense, particularly in this country. But the engine can most usefully be applied to all the chaff-cutting and oil-cake breaking of the farm.

Tree exhibited his gauges, levels, &c.

E. R. and F. Turner crushing mills and grinding mills in great variety, as also their chaff-cutters, cake-breakers, and steam two-horse thrashing machine.

Rea and Burns sent a bone-cutting and rasping-mill; invented, we think, by Forshaw. It appeared capable of great usefulness, but broke accidentally in trial.

Read entered some highly-useful fire and watering engines, pumps, probangs, green-house syringes, &c.

Stone exhibited waggons, carts, trucks, &c.

Thorley his cattle food.

Woof a land-parer of highly-useful character, and washing machine, &c.

Whiteman and Dening many useful implements, amongst them a tubular gate and universal mill.

James and Robert Wright a very commendable iron plough, which obtained the favour of the judges on trial, and received the prize. It is a near approach to the proved standard of mole-turner. Their horse-hoe requires improvement. Their harrows are good.

Young's tree-planter attracted attention.

Lemon had a good show of implements from our best makers. He sent Ball's plough for trial. It did exceedingly well, but is overdone in length of mole-turner.

Richmond and Chandler had their chaff-cutting machines, crushers, mills, &c., in their usual style of excellence. They showed also a very economic steam apparatus.

J. Whitmee and Co. had, as usual, their corn-crushers, chaff-engines, grinding-mills, flour-mills, their little sausage machines, and a new washing machine of highly useful power.

B. Wright a variety of useful implements.

Wheeler and Son, a collection of agricultural seeds, properly arranged.

Chanter and Co. showed some good models connected with steam boilers.

Bridges brought his endless variety of butter-prints and other dairy requisites.

Pickerslay, Sims, and Co. exhibited their chaff engines, bean and oat mills, lawn mower, and washing machine. Their No. 5 engine has many valuable points.

Haigh, washing-dollys, &c.

Dobbs, spirit-level.

David, a monstrous iron cart.

J. C. Glover, some nice Scotch carts.

Busby displayed his customary assortment of very useful and well-made implements, consisting of a number of carts and waggons, ploughs, Norwegian harrow, Woofe's parer, &c. His carts deserved, as they received, much encouragement.

Lucas and Son, steel forks, shovels, spades, and other capital tools, &c.

Hayward, a two-horse steam engine and stone-grinding mill.

Bruce, varieties of varnish.

Jno. Fowler, steam plough, of which we shall speak more definitely in a special report of the trials of steam cultivators, &c., in the field. The steam plough consists of windlass, anchors, and ploughs, and is drawn backwards and forwards in the field by means of an endless rope of wire.

Holmes and Sons showed corn drills, seed drills, a cheap and excellent manure distributor, and a very economical seed machine for sowing grain of all kinds broadcast, for which they very properly received a prize. Their economical seed and manure drills are very commendable.

Williamson and Brothers, a portable steam engine and thrashing machine, and a 3-horse power patent *vortex turbine*, an appliance for the better application of water to drive machinery.

William Butler, a well-arranged and good 6-horse steam engine.

Garrett and Sons had their usual and very superior assortment of implements, consisting of steam engine, thrashing machines, drills, seed and manure distributors, horse-hoes, revolving hoes, dressing machines, and chaff-cutters for steam and horse power, &c.

Hart, Gibbons, and Gibbons, steam engine and thrashing machine, horse-power machine and horse-gear, and cultivator and small thrashing machine complete.

W. Smith, his far-famed steam cultivators and subsoil plough with patent turning bow, a truly simple and effective device for accomplishing a most necessary object—the turning the implements at the ends. It must be seen to be fully appreciated. His trenching plough and set of tackle for steam ploughing was made by Messrs. Humphries, his steam engine by Messrs. Clayton and Shuttleworth, and the other patented implements by Messrs. Howard. They are got up splendidly. We shall have occasion to speak more of them in our notice of the trials in the field.

Brown and May exhibited steam engines, combined thrashing machine, screen, hummellers, mill, saw-bench, &c.

Barrett, Exall, and Andrewes, their excellent variety of first-class implements, including steam engine and combined thrashing machine, two-horse machine haymaker, horse-rake, mills, chaff-cutters, &c.

Tuxford and Sons their seven-horse power steam engine with vertical cylinder, which is the great peculiarity of, and gives a higher value to the engine. Their combined thrashing-machine is so arranged as to work an ordinary corn-dressing machine, which is manufactured into the machine, and is after Gooch's old pattern. This novel idea deserves especial notice.

Cambridge displayed the only Boydell's traction engine shown, of which we will say more in our field trial report. He had also combined steam and horse-power machines, from eight down to two horses' power winnowing machines; his improved and world-renowned clod-crushers, and chain harrows, the trials of which we shall notice.

Oliver Maggs showed a four-horse steam engine and combined thrashing-machine; two-horse ditto corn and oat and bean crushing mills, chaff-cutters, root-graters, cheese-pressers, cider screws, &c., &c.

E. and T. Humphries six-horse power steam-engine (the prize one) and combined thrashing-machines, of which we have said a word or two.

We know more of implements than flannels, but we could observe that the competition for this prize was good, and many excellent specimens of this peculiarly Welsh manufacture were exhibited, in great variety of colour, pattern, and quality. We must now turn to the prize list for the adjudications in all the classes, as our space would not permit a repetition upon the slight notice we are enabled to give. We cannot, however, omit expressing our regret at the absence of some of our best and most approved makers. We hope it was not from other than accidental causes. We did not meet with a Ransome or a Hornsby; nor did we see many of their implements. We always like to look over their stands; and at a national meeting like this, we think their absence, with that of many others, a loss both to themselves and the public.

PRIZES FOR CATTLE.

DEVONS.

JUDGES—Edward Price, Pembridge, Leominster.
S. Tresawna, Lamellyn, Probus, Cornwall.
G. R. Turner, Coombe, Sydenham, Taunton.

The best Bull above three years old.

The prize, a silver cup, to Thomas Webber, Halberton Court, Tiverton. (Prince Albert.)

The best Bull not exceeding three years old.

First prize of 12 sovs. to Richard Corner, Torweston, Williton, Devon. (Briton.)

Second of 5 sovs. to M. Godfrey, Ruperra Castle, Cardiff.

Commended—Capt. J. T. Davy, Rose Ash, South Molton, for his bull.

The best Bull not exceeding two years old.

First prize of 10 sovs. to James Merson, Brinsworthy, North Molton. (Prince of Wales.)

Second of 5 sovs. to Thomas Webber, Halberton. (General Havelock.)

Third of 3 sovs. to James W. Buller, M.P., "The Downes," Crediton.

The best Cow in-calf or in-milk, having had a calf within six months.

First prize of 8 sovs. to James Merson, Brinsworthy. (Dairymaid.)

Second of 4 sovs. to James Davy, Flitton, North Molton. (Curly.)

Commended—Capt. J. T. Davy, for his cow.

The best Heifer in-calf or in-milk, not exceeding three years old.

First prize of 8 sovs. to Thomas Strong, Dunchideock Farm, Exeter. (Ruby.)

Second of 4 sovs. to James Davy, Flitton. (Princess of Prussia.)

Commended—Another of Mr. Strong's heifers.

The best pair of Heifers not exceeding two years old belonging to the same owner.

First prize of 8 sovs. to James W. Buller, M.P.

Second of 4 sovs. to James Merson, Brinsworthy.

SHORT HORNS.

JUDGES—Edward Little, Chippenham.
Robert Spiller, Branscombe, Sidmouth.
Edward Squarey, Odstock, Salisbury.

The best Bull above three years old.

The prize, a silver cup, to John Logan, Maindee House, Newport, Monmouth. (Glanville.)

Commended—Capt. Blathwayt, Dyrham, Chippenham, for his bull.

The best Bull not exceeding three years old.

First prize of 12 sovs. to R. Stratton, Broad Hinton, Swindon. (Victory.)

Second of 5 sovs. to the Hon. P. P. Bouverie, Brymore, Bridgwater. (Frantic.)

The best Bull not exceeding two years old.

First prize of 10 sovs. to William Hewer, Sevenhampton, Highworth. (Economist.)

Second of 8 sovs. to R. Stratton, Broad Hinton.

Commended—Edward Holland, Dumbleton Hall, Evesham, for his bull.

The best Cow in-calf or in-milk, having had a calf within six months.

First prize of 8 sovs. to R. Stratton, Broad Hinton. (Matchless the 3rd.)

Second of 4 sovs. to R. Stratton.

Highly commended—Edward Bowly, Siddington House, Cirencester, for his cow.

The best Heifer in-calf or in-milk, not exceeding three years old.

First prize of 8 sovs. to R. Stratton, Broad Hinton. (Sultana the 2nd.)

Second of 4 sovs. to J. B. Starky, Spyepark, Chippenham. (May Day.)

Highly commended—John Garsed, Moorlands, Cowbridge; J. Logan, Maindee House; and J. Shattock, Parsonage Farm, Long Ashton, Bristol, for their cows.

Commended—Another of Mr. Stratton's cows.

The best pair of Heifers not exceeding two years old belonging to the same owner.

First prize of 8 sovs. to R. Stratton, Broad Hinton.

Second of 4 sovs. to J. Logan, Maindee House.

HEREFORDS.

JUDGES—Edward Price, Pembridge, Leominster.
S. Tresawna, Lamellyn, Probus, Cornwall.
G. R. Turner, Coombe, Sydenham, Taunton.

The Best bull above three years old.

The prize, a silver cup, to Lord Bateman, Shobdon Court, Leominster. (Carlisle.)

Highly commended—The Tredegar Iron Company, for a bull.

Commended—William Taylor, Showle Court, Ledbury, Hereford, for his bull.

The best Bull not exceeding three years old.

First prize of 12 sovs. to Rees Keene, Pencraig, Caerleon, Monmouthshire. (General Wyndham.)

Second of 5 sovs. to William Taylor, Showle Court. (Thankful.)

The best Bull not exceeding two years old.

First prize of 10 sovs. to William Perry, Cholstrey, Leominster. (The Monk.)

Second prize of 5 sovs. to W. C. Morris, Whitwick, Lower Eggleton, Ledbury. (Admiration.)

The best Cow in-calf or in-milk, having had a calf within six months.

First prize of 8 sovs. to Henry Morgan, Mamhilad House, Abergavenny.

Second of 4 sovs. to Rees Keene, Pencraig. (Jenny.)

Highly commended—Warren Evans, Llandowlas, Usk, for his cow.

The best Heifer in-calf or in-milk, not exceeding three years old.

First prize of 8 sovs. to William Perry, Cholstrey, Leominster.

Second of 4 sovs. to William Perry, Cholstrey.

The best pair of Heifers not exceeding two years old.

First prize of 8 sovs. to Lord Bateman.

Second of 4 sovs. to William Williams, Red House, Ely, Cardiff.

Commended—Rees Keene, Pencraig, for his heifers.

SHEEP.

JUDGES—Robert May, Rewe, Exeter.
Robert Smith, Emmetts Grange, Exmoor.
— Spencer, Lutterworth, Leicester.

LEICESTER OR LONG-WOOLLED.

(Not qualified to compete as Cotswold).

The best Yearling Ram.

First prize of 6 sovs. to John Bodley, Stockleigh Pomeroy, Crediton.

Second of 4 sovs. to John Partridge, Bow, Crediton.

Third of 2 sovs. to Thomas Potter, Yellowford, Devon.

The best Ram of any other age.

First prize of 5 sovs., John Partridge, Bow.

Second of 3 sovs., John Gregory Watkins, Woodfield, Worcester.

Highly commended.—Samuel Kingdon, Lynch, Thorverton, Devon, for his Ram.

The best Pen of Five Ewes.

The prize of 4 sovs., Samuel Kingdon, Lynch.

The best Pen of Two-teeth Ewes.

First prize of 5 sovs., R. Corner, Torweston.

Second of 3 sovs., James W. Buller, M.P.

Third—*not awarded.*

COTSWOLD.

The best Yearling Ram.

First prize of 5 sovs., Thomas B. Browne, Hampen, Andoversford.

Second of 3 sovs., Edward Handy, Sierford, Cheltenham.

The best Ram of any other age.

First prize of 5 sovs., Edward Handy, Sierford.

Second of 3 sovs., John K. Tombs, Langford, Lechlade.

The best Pen of Five Ewes.

The prize of 4 sovs., William Smith, Bibury, Fairford.

The best Pen of Two-teeth Ewes.

First prize of 5 sovs., Thomas B. Browne, Hampen.

Second of 3 sovs., Wm. Smith, Bibury.

COTSWOLD DOWN OR OXFORD DOWN.

The best Yearling Ram.

First prize of 4 sovs., William Flemming, Goldicot, Moreton-in-the-Marsh.

Second of 2 sovs., John K. Tombs, Langford.

The best Pen of five Two-teeth Ewes.

First prize of 4 sovs., John K. Tombs, Langford. (Only one entry).

SOUTHDOWN.

JUDGES.—Edward Little, Chippenham,
Robert Spiller, Branscombe, Sidmouth.
Edward Squarey, Odstock, Salisbury.

The best Yearling Ram.

First prize of 5 sovs., Ralph Neville Grenville, Butleigh Court, Glastonbury.

Second of 3 sovs., the Duke of Beaufort, Badminton.

The best Ram of any other age.

First prize of 4 sovs., the Duke of Beaufort

Second of 3 sovs., the Duke of Beaufort.

Pen of Five Ewes.

The prize of 4 sovs., the Duke of Beaufort.

The best Pen of five Two-teeth.

First prize of 5 sovs., Wm. Lucas, East Coker, Yeovil.

Second of 2 sovs., the Duke of Beaufort.

SHROPSHIRE DOWN, OR HAMPSHIRE DOWN

(Not qualified to compete as Southdown).

First prize of 4 sovs., John Moore, Littlecott Farm, Pewsey.

Second of 2 sovs., John Moore, Littlecott.

The best Ram of any other age.

First prize of 3 sovs., George Traherne, St. Hilary, Cowbridge.

Second of 2 sovs., John Garsed, the Moorlands, Cowbridge.

The best Pen of Five Ewes.

The prize of 4 sovs., George Harbin, Newton-house, Yeovil.

The best Pen of Two-teeth Ewes.

First prize of 4 sovs., George Harbin, Newton.

Second of 2 sovs., John Moore, Littlecott.

SOMERSET AND DORSET HORNS.

JUDGES.—Robert May, Rewe, Exeter,
Robert Smith, Emmett's Grange, Exmoor,
— Spencer, Lutterworth, Leicester.

The best Yearling Ram.

First prize of 5 sovs., Thomas Danger, Huntstile, Bridgwater.

Second of 3 sovs., Thomas Danger, Huntstile.

The best Ram of any other age.

First prize of 3 sovs., Thomas Danger, Huntstile. (Only one entry).

The best Pen of Five Ewes.

The prize of 4 sovs., Wm. Templeman, North Perrott, Crewkerne, Somerset.

The best Pen of Five Two-teeth Ewes.

First prize of 5 sovs., Robert Templeman, Perrott.

Second of 3 sovs., Thomas Danger, Huntstile.

MOUNTAIN SHEEP.

The best Ram of any age.

First prize of 4 sovs., James Merson, Brinsworthy.

Second of 2 sovs., James Merson, Brinsworthy.

Commended.—Sir T. D. Acland, Killerton, Exeter, and James Merson, Brinsworthy, for rams.

The best Pen of Five Ewes of any age.

First prize of 4 sovs., James Merson, Brinsworthy.

Second of 2 sovs, James Merson.

Commended.—Sir T. D. Acland, Killerton, for two pens.

HORSES.

JUDGES.—G. Brown, Avebury, Wilts,
John Wippell, Exminster,
John Moore, Whitchurch, Hants.

FOR AGRICULTURAL PURPOSES.

The best Mare and Foal, or in Foal.

First prize of 10 sovs., William Lowrie, Cadoxton-Juxta-Barry.

Second of 5 sovs., John Logan, Maindee-house.

The best Two-year-old Colt.

First prize of 10 sovs., John Logan, Maindee-house.

Second of 5 sovs., Henry Hitchcock, Chilterne All Saints, Heytesbury.

The best Two-year-old Filly.

First prize of 5 sovs., W. Lowrie, Cadoxton.

Second of 3 sovs., Messrs. Llewellyn and Henry Thomas, Tydraw Llantrythyd, Cowbridge.

The best Yearling Colt or Filly.

First prize of 5 sovs., Edward Holland, Dumbleton.

Second of 3 sovs., John Logan, Maindee-house.

Commended.—W. Lowrie, Cadoxton, for his colt.

HACKS AND HUNTERS.

The best Mare and Foal, or in Foal.

First prize of 5 sovs., H. Entwisle, Marlbro' Grange, Cowbridge.

Second of 3 sovs., B. H. Cuthbertson, Cefu Llech, Llangibby.

The best Two or Three-year-old Filly.

First prize of 5 sovs., Hamilton Baillie, Ash Hall, Cowbridge (filly by Sebastopol).

Second of 3 sovs., T. W. Blakemore, M.P., Velindra House, Cardiff (filly by St. George).

The best Yearling Colt or Filly.

First prize of 5 sovs., William Williams, Zealand, Bridgend (colt by Gaper).

Second of 3 sovs., Hugh Entwisle, Marlbro' Grange.

Commended.—Rev. G. F. Hodson, North Petherton, Bridgewater, and Hamilton Baillie, Ash Hall, for fillies.

The best Two or Three-year-old Colt or Gelding.

First prize of 4 sovs., James Ballard, Llwyn Hily House, Cowbridge (colt by Chanticleer).

Second of 2 sovs., James Watson, St. Fagans, Cardiff (colt by St. George).

PONIES.

For the best Mare Pony of any breed, not exceeding fourteen hands high.

First prize of 4 sovs., G. M. Traherne, St. Hilary, Cowbridge.

Second of 2 sovs., Thomas Thomas, St. Hilary, Cowbridge.

The best Mare Pony of any breed, not exceeding thirteen hands high.

First prize of 4 sovs., John Williams, Splott House, Cardiff.

Second of 2 sovs., W. Leyshon, Bridgend.

Highly commended.—Rev. C. J. C. Bulteel, Holberton Vicarage, Devon, for his pony.

The best Stallion Pony of the Welsh breed, not exceeding fourteen hands high.

First prize of 5 sovs., T. W. B. Blakemore, Velindra House.

Second of 3 sovs., Robert Griffiths, Sigginstone.

Highly commended.—Henry Anthony, Pandy, Caerphilly, Glamorgan, and P. James, Chepstow, for their ponies.

PIGS.

JUDGES.—G. Brown, Avebury, Wilts.
John Moore, Whitchurch, Hants.
John Wippell, Exminster.

LARGE BREED.

The best Boar, not exceeding two years old.

First prize of 4 sovs., William Hewer, Sevenhampton, Highworth (Berkshire).

Second of 2 sovs., William Hewer (Berkshire).

The best breeding Sow in farrow, or that has farrowed within four months

First prize of 4 sovs., Edward Bowley, Liddington House, Cirencester (Berkshire).

Second of 2 sovs., Sir Robert G. Throckmorton, Buckland, Faringdon (Berkshire).

Highly commended.—Messrs. Brogden and Sons, Tondee Iron Works, Bridgend (Lancashire).

Commended.—R. N. Grenville, Butleigh Court.

The best Pen of three Breeding Sows, not exceeding nine months.

First prize of 3 sovs., William Hewer, Sevenhampton (Berkshire).

Second of 2 sovs., William Hewer (Berkshire).

Commended.—William Hewer, for another pen of sows of the Berkshire breed.

SMALL BREED.

The best Boar, not exceeding two years old.

First prize of 4 sovs., Rev. G. F. Hodson, North Petherton, Bridgewater (Leicester).

Second of 2 sovs., Rev. G. F. Hodson (Leicester)-

The best Breeding Sow in farrow, or that has farrowed within four months.

First prize of 4 sovs., Rev. G. F. Hodson (Leicester).

Second of 2 sovs., Rev. G. F. Hodson (Leicester).

The best Pen of Three Breeding Sows, not exceeding nine months.

First prize of 3 sovs., Llewellyn Williams, Merthyr (white).

Second of 2 sovs., John Homfray, Penlline Castle, Cowbridge (White Yorkshire).

WELSH CATTLE.—ANY BREED.

JUDGES.—Edward Price, Pembridge, Leominster.
S. Tresawna, Lamellyn, Probus, Cornwall.
G. R. Turner, Coombe, Sydenham, Taunton.

The best Bull, not exceeding three years old.

No entry.

The best Bull, not exceeding two years old.

No entry.

The best Cow in-calf, or in-milk, having had a calf within six months.

No merit.

For the best Heifer in-calf or milk, not exceeding three years old.

First prize, not awarded.

Second of 2 sovs., George Goode, Croft Cottage, Carmarthen (Black).

SPECIAL PRIZE offered by C. C. Williams, Esq. The best Cow in-calf or in-milk, having had calf within six months.

The prize, Rees Keene, Pencraig (Whitefaced).

Commended.—John Logan, Maindee House, for red cow.

The best Pair of Steers, not exceeding three years old.

The prize, Sir Charles Morgan, Bart., Tredegar Park, Monmouth (Shorthorns).

Commended.—Hugh Entwisle, Marlbro' Grange, and Rees Keene, Pencraig, for their steers.

EXTRA STOCK.

A prize of £2, James Wall, Redland Lodge, Bristol, for a pony.

A prize of £1, Hugh Entwisle, of Marlbro' Grange, for Shorthorn Cow and Calf.

A prize of £2, John Logan, Maindee House, for Shorthorn Cow.

A prize of £1, the Tredegar Iron Company, Newport, for Hereford Heifer.

A prize of £2, Sir Charles Morgan, Tredegar Park, for pair of Shorthorn Heifers.

PRIZES FOR IMPLEMENTS.

JUDGES OF IMPLEMENTS IN THE FIELD:

JOHN CLARKE, Long Sutton, Wisbeach.
CLARE SEWELL READ, Stoke Ferry, Brandon, Norfolk.

JUDGES OF THRASHING MACHINES, &c., IN THE YARD:

H. B. CALDWELL, Brandon, Norfolk.
OWEN WALLIS, Overstone, Northampton.

MISCELLANEOUS:

WILLIAM LISTER, Richmond, Yorkshire.
THOMAS SCOTT, Ripon.

ENGINEERS:

EDWARD EASTON, Grove, Southwark.
W. GOOCH, Great Western Railway, Swindon.

PREPARATION FOR GROUND.

The best application of steam power to the cultivation of land, 25*l.*, *no competition*

The best plough for general purposes, 3*l.*, J. & R. Wright, Sandford, Crediton, Devon.

The best subsoil plough, 2*l.*, E. H. Bentall, Heybridge, Maldon, Essex.

The best turnwrest plough, which will efficiently turn the furrow against the hill, 3*l.*, John Eddy, Kennford, Exeter.

The best cultivator, grubber, and scarifier (wide), 2*l.*, Richard Coleman, Chelmsford, Essex.

The best (narrow), 2*l.*, Richard Coleman, Chelmsford.

The best single or double drag, 1*l.*, E. H. Bentall, Heybridge.

The best set of harrows, 1*l.*, A. and T. Fry, Temple-gate, Bristol.

The best set of seed harrows, 1*l.*, J. and R. Wright, Sandford.

The best chain harrow, 1*l.*, W. C. Cambridge, Bristol.

The best clod crusher or pulverizer, 2*l.*, W. C. Cambridge.

CULTIVATION OF CROPS.

The best corn drill, 5*l.*, Hugh Bird, Cardiff.

The best corn drill for small occupations in hilly districts, 5*l.*, *withheld.*

The best turnip and mangel wurzel drill, for ridge or flat, depositing manure with the seed, 5*l.*, R. & J. Reeves, Westbury, Wilts.

The best general drill, capable of distributing at pleasure liquid manure with the seed, 5*l.* *No machine complied with the conditions of this prize.*

The best general manure distributor, 5*l.*, R. and J. Reeves.

The second best 2*l.*, *the prize withheld.*

The best horse hoe for green crops on the ridge and flat, 1*l.*, Hugh Carson, Warminster.

The best on steep hill sides, specially adapted to work horizontally along the side of the hill, 2*l.*, Hugh Carson.

The best machine for setting out turnips on the ridge or flat, preparatory to singling, 3*l.*, John Eaton, Twywell Works, Kettering.

The best hand machine for filling up vacancies in drilled green crops, 1*l.*, *no entry.*

HARVESTING CROPS, AND PREPARING FOR MARKET.

The best haymaking machine, 2*l.*, Smith and Ashby, Stamford.

The most economical and practically useful portable steam-engine, 10*l.*, Brown and May, Devizes, Wilts.

The second best, 5*l.*, to W. C. Cambridge, Bristol.

The portable combined steam thrashing machine, which shall perfectly prepare the sample for market, 10*l.*, Humphries, Pershore, Worcester.

The most simple and practically useful portable combined steam thrashing machine, not requiring more than eight horse power, which shall make the best subdivisions of corn and refuse, 5*l.*, Humphries, Pershore.

The most practically useful portable thrashing machine, with riddle and straw shaker, not requiring more than three-and-a-half horse power, when worked independently of its horse gear, 3*l.*, H. Beare, Newton Abbott, Devon.

The best portable four-horse gear, adapted for driving thrashing machines, 2*l.*, H. Beare, Newton Abbott.

The best single horse gear, for driving chaff-cutters, &c., 1*l.*, A. and T. Fry, Bristol.

The best winnowing machine, which shall be also convertible into a simple blower, 3*l.*, Burrow and Page, Morchard Bishop, Devon.

The best one-horse cart, for general purposes, 2*l.*, *divided* between Milford and Sons, and George Milford, both of Thorverton, Devon.

The best two-horse waggon, provided with efficient means of checking its speed downhill without dragging or locking the wheels, 2*l.*, *divided* between Milford and Sons, and George Milford.

PREPARATION OF FOOD FOR STOCK.

The best chaff-cutter, worked by horse or steam power, 2*l.*, H. Carson, Warminster.

The best machine for grating or pulping roots, 2*l.*, E. H. Bentall, Heybridge.

The best turnip-cutter, 1*l.*, *divided* between A. and T. Fry, Bristol, and H. Bird, Cardiff.

The best corn and pulse bruiser, worked by horse or steam power, 2*l*., E. R. and F Turner, Ipswich.

The best oil-cake crusher, for every description of cake, 1*l*., E. H. Bentall, Heybridge.

The best gorse bruiser or chopper, 2*l*., Richmond and Chandler, Salford, Manchester.

The best and most economical steaming apparatus for preparing food for cattle, pigs, &c., 2*l*., Richmond and Chandler, Salford.

MISCELLANEOUS.

The best churn, 1*l*., Hugh Bird, Cardiff,

The best cheese press, 1*l*., Carson and Son, Warminster.

The best cooking apparatus for farm kitchens, 2*l*., John Gliddon, Williton, Somerset.

The best field-gate, not less than nine feet in length, fitted with hangings and fastenings, 1*l*., Samuel Rousell, Buckland St. Mary, Somerset.

The best specimen of substantial fencing, calculated to resist cattle of all kinds, constructed either of iron, wood, or a combination of both materials, fixed or moveable, 1*l*. *No award.*

The best self-acting valve for the discharge of small streams into tidal rivers. *No merit.*

SPECIAL PRIZES.

OFFERED BY CHARLES CROFT WILLIAMS, ESQ.

The best and most useful collection of agricultural implements, *bona fide* the property of the exhibitor, first prize of 10*l*., Hugh Bird, Cardiff; second of 1*l*., A. and T. Fry, Bristol.

OFFERED BY A MEMBER OF THE SOCIETY.

The best machine for sowing grain of all kinds broadcast, capable of being worked by one horse, 1*l*., Holmes and Son, Norwich, Norfolk.

OFFERED BY JONATHAN GRAY, C. C. WILLIAMS, AND T. D. ACLAND, ESQRS.

The best specimen of 10 yards of real South Wales white flannel, three-yards wide, 3*l*., David Lewis, Pandy Machen; second, 1*l*., W. Smith, Tonyrevail, Pontypridd. The prize decided by texture and durability.

The best specimen of 10 yards of blue and white, or red and white striped flannel for gowns, woven in the national style of South Wales, 3*l*., David Lewis, Pandy Machen; second, 1*l*., Wm. Smith, Tonyrevail. The prize decided by quality, pattern, and colours.

The best specimen of 12 yards of Welsh fancy plaid flannel adapted for ladies' dresses, 5*l*., David Lewis, Pandy Machen; second, 1*l*., Wm. Smith, Tonyrevail.

AWARDS OF CERTIFICATE OF MERIT.

For single or double drag, Thomas Lyne, Malmesbury, Wilts.

For a spiked chain harrow, Thomas Lemon, Cardiff.

SPECIAL AWARDS.

For a paring plough, 2*l*., William Woofe, Regent-street, Gloucester.

For lever harrows, 1*l*., Thomas Lyne, Malmesbury.

For Chandlers' water drill, with Reeves' improvements, and Chambers' drop, 5*l*., R. and J. Reeves, Westbury.

For improvements in his corn screen, by which the wires can be set fine or coarse, 1*l*., Robt. Boby, Bury St. Edmunds.

For an improved horse hoe, 1*l*., Garrett and Son, Saxmundham.

For improved steam power portable cloverseed-drawing machine, 2*l*, Holmes and Sons, Norwich.

HIGHLY COMMENDED.

A winnowing machine, Robert Boby, Bury St. Edmunds.

A cultivator, grubber, and scarifier (wide), E. H. Bentall, Heybridge.

A set of seed harrows, James Comins, South Molton' Devon.

Plough for general purposes, Thomas Lemon, Cardiff.

Chaff-cutting machine, James Cornes, Nantwich, Cheshire.

COMMENDED.

A subsoil plough, John Eddy, Kennford, Devon.

A turnwrest plough, J. and R. Wright, Sandford.

A cultivator, grubber, and scarifier (wide), Hugh Carson, Warminster.

A set of seed harrows, E. H. Bentall, Heybridge.

A set of harrows, Thomas Lyne, Malmesbury.

A clod crusher or pulverizer, A. and T. Fry, Bristol.

A cultivator, grubber, and scarifier (narrow), E. H. Bentall, Heybridge.

A single or double drag, John Eddy, Kennford.

A single or double drag, J. and R. Wright, Sandford.

A set of harrows, E. H. Bentall, Heybridge.

Plough for general purposes, Hugh Carson, Warminster.

Plough for general purposes, John Eddy, Kennford.

Plough for general purposes, Reubin Lewis, Whitchurch, Cardiff.

Clod crusher or pulverizer, Hugh Carson, Warminster.

Clod crusher or pulverizer, John Eddy, Kennford.

Oilcake crusher, Smith and Ashby, Stamford.

Chaff-cutting machine, Richmond and Chandler, Salford.

Patent safety chaff-cutter, Smith and Ashby, Stamford.

Double ridge horsehoe, E. H. Bentall, Heybridge.

A winnowing machine, George Wreford, Newport, Barnstaple.

THE DINNER

Took place on the Thursday afternoon, in a well arranged and ventilated marquee, within the Show ground. Lord Courtney again presided, with Messrs. Sillifant and Newman as his Vice-Presidents, and the following gentlemen as stewards of tables:—John Gray, Knollys, Acland, Pitman, Jonathan Gray, Gillett, Farrant, Widdicombe, Maule, Hussey, and Gordon. There were also present the Mayor of Cardiff, Lord James Stuart, M.P., Col. Stuart, M.P., H. A. Bruce, Esq., M.P., H. H. Vivian, Esq., M.P., H. Thomas, Esq., the Rev. J. Evans, jun., and about three hundred other gentlemen, either locally interested, or more directly identified with the cause of agriculture.

After the customary loyal toasts, the Chairman gave the "Army and Navy," Colonel Stuart replying for the former, and Captain Scobell in a long tedious oration for the Navy.

The healths of "The Lord Lieutenant," "The Mayor," "Lady Bute," and "The Chairman" followed. Mr. Sillifant gave "The Local Committee," and Mr. Knollys "The Judges."

Mr. CALDWELL in replying said: My Lord and Gentlemen, I rise to respond to the toast just proposed by Mr. Knollys in so complimentary a manner, and so far beyond our deservings, though I know we have all fearlessly and conscientiously tried to do our duty. If I now venture to make a few remarks on some of the trials which I have had to do with, I trust I shall be pardoned if I omit any thing really of consequence; for, having had no intimation of having to respond to this toast, I have no notes by me. First, I must congratulate the Society upon the very excellent show of implements in the yard; next, on the great assistance rendered to the judges by the stewards; and further, to the readiness with which the implement makers came to their trials; but I must add, how sorry I am that we had not more competition with the thrashing machines, for finishing corn for market. We put two (Mr. Humphries, and Mr. Cambridge's) to severe trials, and they did their work well, and we proved the quality of their work by passing some of their dressed corn through Mr. Boby's very excellent screen; even then we had great difficulty in deciding on the superior merit of one machine over the other, and it was only when we put all things together which as judges we had to consider, that we could but award the prize to Mr. Humphries. For our own satisfaction, and also that of the farmer, we made further trials. Taking the same quantity of dressed corn from the hand-power dressing machines, that is, from a sample of the best dressed given to us by the judges of those implements, we passed it through Mr. Boby's screen, and had the same result as from the corn which was dressed by the finishing thrashing machines—that is, while we had a difference of 4 and 5lbs. of light corn taken from 1½ cwt. of the thrashing machine samples, we had 4½lbs. from that of the hand-power dressing machines. This we considered a great triumph for the finishing thrashing machines; and I do not hesitate to say, that if the prize machine goes to Chester, it will be something very superior that beats it, though I shall be delighted, for the benefit of the farmer, if such a thing takes place; and if after three years' lull, such is not the case, all I can say is, it ought to be. We also had some corn thrashed by a machine driven by its own steam-engine, both belonging to a steward of the society. We took a sample of what we considered his very best dressed corn, and the result was the same as all the other trials, when it had been passed through

Boby's screen, viz., 4½lbs. from 1½ cwt.—and this thrashing machine is supposed to be perfect. I must say again, I was sorry at having so small a number of competitors; but having had my *rubs* with the makers on the subject, I will say no more than that I am happy we still meet as friends. I can also answer for the goodness of many chaff-cutters, and nothing but the greatest pains-taking and the working of many figures from the dynamometer could decide on the superiority of one over the other. The pulse-bruisers were not equally matched as to size, so I will say nothing on that subject. With the ploughs and field implements I had nothing to do, as they were not in my department. On the trials of 3½ horse-power thrashing-machines I will say nothing: they are a bad class; and where farmers wish for such small power, they had better adhere to the simple thrashing machine. As a judge, I well know there must be disappointed exhibitors, but we act for the benefit of the farmer; and if leading firms are beaten, we must rejoice that the agricultural societies have stirred up a good and wholesome rivalry, and thus brought better implements into use. I hope I have now said enough for my department, and having made thus a small report of our proceedings during this pleasant meeting, I must congratulate the Society also on the benefit that is entailed on the labouring community; for where steam is employed, there you see more labour employed, and much more intelligence growing up amongst our humbler brethren. This is caused by the march from place to place of the Agricultural Societies; securing at the same time good employment for the artizan and mechanic, as well as for the farm labourer. While the country thus improves in intelligence, and consequently in morality, so will blessings be added to the many so long bestowed on dear old England. In the name of the judges of implements, I return you our best thanks.—[Mr. Caldwell's address was received with marked attention, and he sat down amidst general cheering.]

Mr. SMITH, of Exmoor, also replied, as one of the Judges of stock. He said: My Lord and Gentlemen,—I feel that an important duty has fallen to my lot. I am called upon to answer for the opinions of the twelve learned judges who have acted on this occasion to award the many premiums offered in the stock classes. If I had the talent of a Sillivant, this would indeed be an easy task. But, my Lord, I am thrown on my own resources; and happily do I reflect that while Dame Agriculture gave us birth, we have had practice at our fingers' end, and I hesitate not to tell you that we have fearlessly done our duty. The practical duties of a judge are best illustrated by the fact that, at such gatherings as the present, it is their duty to keep in view the great object of the Society, viz., to unite with elegance and quality of flesh the great essential of constitution which can alone be produced by the cylindrical form. Again, it should be remembered that they are required to point out a class of animals that shall be best suited to the production of male animals, leaving the local societies to award their prizes for geldings, steers, and general stock. In so doing they are bound to adhere to symmetry and quality as the only foundation of this important object, leaving the larger or irregular forms to the chances I have named. Allow me, my Lord, to claim for myself and colleagues the advantages we had in being enabled to see the animals unloosed and paraded before us to assist our judgment, while the spectator during his scrutiny has alone the chance of seeing the animals as they may happen to appear before him, attitude having much to do with the decisions they come to, and thus frequently to condemn the judges. Having said thus much for my colleagues, allow me as a west countryman to express my delight in common with previous speakers at the warm reception we have met on this our sister soil. Although our Society boasts its ancient date, and consequent usefulness, I may fairly say that, in accepting the invitation of the Principality, we do not bring with us the spirit of dictation, but we do bring with us a spirit of fellowship, which we hope will ripen into maturity on both sides the Bristol Channel. We bring not with us our camp for warfare, but rather for peace, and this we have pitched upon the green sward of this beautiful park. To cement this union, we invite you to pay us a return visit in the year 1859. I say come to that picturesque and beautiful locality, North Devon—our next anniversary at Barnstaple—and we will give you a hearty welcome. To return to my charge, it may be rightly expected that I should give some account of the exhibition. This is told in a somewhat brief summary; it is a fair and bold average gathering upon the whole. There are, as in former years, the strong entries and weak entries. It has been truly said that the Society comes not here to teach; but I would humbly suggest that it would be well for the Welshman to engraft upon his mind by *observation* the merits of the several prize animals in their respective classes, for these are happy types of their order. For the best displays we may refer to the cattle classes. It is unfortunately true that the exhibition of Devons is not what we in North Devon could have wished; but when you come to our classic lands, we will show you them in greater numbers and of better quality. Your Welsh ponies are worthy of attention, and we here exchange with you a few ideas as to the merits of this most beautiful and useful animal, the pony. I cannot, unfortunately, say as much for your mountain sheep, they are so much excelled by my friends the Exmoors. I have mentioned the home of the Devons on our side the water; let me add to this that we have also our mountain lands, and we will exhibit to you on our own soil the Exmoor mountain sheep and ponies in goodly numbers, and then leave you to draw your own inference as to the respective merits of the sister mountain products. We meet here on mutual ground for the interchange of ideas. I see no reason why we should not meet again to exchange our produce. The Exmoor pony is a popular beast, but I feel that he does not excel his companion on the hills, the Exmoor sheep. These require to be better known. As an illustration I will give you figures from my private book. The council having entrusted to my care the collection of information for their report of the show, I have called to my aid the assistance of "the tape," whereby to make a comparison of their girths against the other sheep. In doing this I selected the prize ram in each of the old classes, taking as my basis the fact that these would be fully developed in their form, and thus best suit my experiment. I will now read to you the result:—

GIRTH OF FIRST PRIZE OLD SHEEP.

Southdown....................	49 inches.
Hampshire Down................	49 „
Exmoor Mountain...............	48 „
Dorset Horn...................	46 „

In the long-woolled classes the old Leicester girthed 61½ inches, the Cotswold 60 inches. The Welsh mountain rams from 33 inches to 39 inches. By these figures we get comparative data; and, I may add, that if any one will visit and inspect the forms of these respective animals, they will find that it is the cylindrical form and depth of flesh that have governed this result, and clearly point to the Exmoor sheep as a hardy class of animal, and why they can so well contest the storms of their mountain district. I may mention another fact—that, in measuring the prize animals in the cattle classes, we found those animals which were the deepest in their fore-quarters were also longer in their form—a circumstance rather contrary to the general views of the spectator (much cheering).

Mr. THOMAS gave "The Stewards," in a speech of much humour, in which he related how turnip culture was introduced into Wales, through the agency of a Lincolnshire farmer, who married a Welsh widow with eight hundred a year as some reward for his patriotism.

Mr. PITMAN, as steward of the Poultry Show, responded, and bore testimony to the advantage of poultry shows, in increasing the quantity produced, and the quality also. Dorkings had increased one-third during the last nine years. England used to spend £1,500,000 annually in the purchase of poultry in France and Spain; but this had now been considerably lessened.

Mr. BRUCE proposed "The Labourer," in a speech of much eloquence, and Mr. MOYSEY "The Royal Agricultural Society of England."

Mr. ACLAND, as a member of the Council of the Society, replied. It was the maxim of his relative, the well-known Philip Pusey, that they should not attempt to teach farmers, but collect their experience, and put it before them in a practical form. That was what the Royal Society still desired to do. Mr. Acland dwelt at some length on the advantage of water meadows, and instanced those of Mr. Pusey, and the later triumphs of Mr. Smith on Exmoor, as worthy of the attention of the Welsh farmer. He proceeded to show the advantage of "mind" applied to the pursuits of agriculture, and trusted the time would come when the Royal Society would not refuse to pay becomingly for its application to such a pur pose. Mr Acland concluded by proposing "The Visitors," and coupled with the toast the name of Mr. Olcott from the United States.

Mr. OLCOTT, on rising, was greeted with an expression of hearty welcome. He said that it gave him the highest gratification, as a member of the United States Agricultural Society, to receive the polite courtesy which had been extended to it in his person; and as a representative of that young and vigorous nation which had sprung from our own loins, and was by ten thousand bonds linked to us, he returned thanks for the expressions of interest in her welfare. He was both surprised and gratified to find that an agricultural meeting in England was so similar to one in his own country, for it evinced the progress they had made towards an imitation of our own excellence. And further, he saw that at an agricultural banquet we, like they, seemed animated by a desire to bury all controversies and sectional jealousies, and unite in praise of the most majestic of national interests. You have read, gentlemen, of the strife between the slaveholding and non-slaveholding interests, and of the opposing factions at the North and the South. But need I tell you that when the representatives of those parties meet at the table of a society such as this, peace and fraternal courtesies banish all harsh feelings; and that with one accord, and like loving children of a common parent, they seek only to say, as eloquently and as earnestly as they can, how important is the labour of the husbandman. The peculiar necessities of each nation tend to develope certain branches of industry to a very unequal extent, and hence the show-yard of an American Agricultural Society presents a certain dissimilarity in appearance from one in Great Britain. At an American meeting we have a larger variety of labour-saving machinery, but not so many stationary engines. Horse power is still, to a great extent, applied to the working of thrashing machines, sawing wood, grinding, and such-like occupations. Still, steam is being slowly but surely employed for all these purposes, and a large number of very excellent portable engines are being annually brought into use. The scarcity of labour, as compared with an almost boundless territory of 3,000,000 of square miles, compels us to the production of machinery and implements for performing every detail of agricultural labour. Take, for instance, the Indian Corn or Maize crop, which, strange as it may seem to such of you as are not familiar with the actual statistics, is four times as valuable in the aggregate as the cotton, which is boastingly said "is king." The vast area of fertile land in the Western States, which is suitable for the production of this staple, and its very moderate price, enable men in even moderate circumstances to own hundreds and even thousands of acres. With a scanty, and what is more, a thoroughly independent population, it is evident that these fields cannot be worked by manual labour, and the result is that the mechanical faculties of the nation are taxed to produce machinery to supply this pressing need. So successfully has this demand been met, that we plant, cultivate, harvest, and prepare for market the corn. A farmer scarcely needs to touch it, from the time it leaves his granary until its produce fills his bins in the autumn. You will not then, my Lord and gentlemen, accuse me of exaggeration when I say that it is only necessary to intimate to a really ingenious Yankee that a machine is wanted for a particular purpose, and in thirty days you will have patents registered for at least thirty machines of the greatest dissimilarity of plan, and each claiming to accomplish its work by the shortest possible cut. To the breeding of cattle we are also giving much attention. By importation from your best herds we have, in a quarter of a century, accumulated many of your very best blooded animals; and in a genial climate, and by skilful management, their progeny reproduce with faithful exactness the noble qualities of their sires. At an American show you will see ranges of sheds appropriated to Shorthorns, Herefords, Devons, Alderneys, and Ayrshires, to all your various breeds of sheep and swine. We have breeds of horses peculiar to our country. The Morgan and Black Hawk of Vermont are strong, symmetrically shaped, and of great beauty of appearance. In Kentucky, your thoroughbreds attain an early maturity, and lose nothing of their strength of constitution or fleetness of foot. The very abundance of land and the migratory character of our people militate against the realization of that beautiful system in farming which I see in every part of England which I have visited; but the wide diffusion of agricultural literature, the interchange of visits between wealthy agriculturists of both countries, the enthusiastic support of agricultural fairs, are all working effectually to bring about a future "good time" for agricultural science in my country. Do not suppose, my Lord, that we are ignorant of what you are doing in the field of agricultural experiment; for we are, perhaps, as well aware of it as yourselves. We get your *Mark-lane Express*, your *Farmer's Magazine*, the *Gardeners' Chronicle*, the Journal of your own Society, and those of the Royal Agricultural Society of England, and the Highland and Agricultural Society of Scotland; and although our farmers have not the means or the disposition, or I might say, in many cases, the necessity, to duplicate your practice, they know very well what is going on at Rothamsted and Cirencester, at Tiptree Hall and Lois Weedon. My Lord, I pray you to bear with me if I seem to be prolix; but the theme is a glorious one, and the interest and the nation in whose behalf I speak are very near to my heart. I could wish that we might welcome to the tables of our agricultural banquets many more of your agriculturists than we do, and that many more of my brother farmers of America could see what I have this day seen, and hear what I have heard. It does not need your warm grasp of the hand or your kindly accents of welcome to convince us of the interest you take in our welfare; nor do I believe that yourselves require like convincing proof on our part. A community of interests between your Royal Exchange and our western farm—between your cities of manufacture and ours of shipment—have forged bonds that will endure for ever. A common origin causes national sympathies that cannot be kept asunder by a few thousand gallons of water in the bed of a sea. When your brave and good soldier fell in the torrid latitudes of the East, after having conquered impossible difficulties and achieved almost impossible glory, we mourned for him as if he had been leading an American, and not an English host. In our principal cities the flags at half-mast, the solemn tolling of the bells, the deeply affectionate expressions of our citizens, and the tone of our public press, all betokened our sentiments of grief. It was the tribute of a brave nation to a brave and good man. And I feel confident that General Havelock's widow, or his children, would find in the United States an opening of doors and an opening of hearts that is only accorded, in most cases, by one's own countrymen. Thanking you sincerely, my Lord, and gentlemen of the Bath and West of England Society, for your welcome and the attention you have bestowed upon my remarks, I take my leave of your hospitable society.

Mr. JONATHAN GRAY gave "The Railway and Steam Navigation Companies," and thanks to them for the facilities they had afforded the society.

Mr. T. WALDRON, "Prosperity to the town of Cardiff."

Mr. CALDWELL "Success to the Bath and West of England Society;" and the CHAIRMAN "Success to the next merry meeting at Barnstaple."

THE ANNUAL MEETING

took place on Thursday. Lord Courtenay in the chair. The Secretary read the

REPORT OF THE COUNCIL,

which was adopted.

"The Council have again the satisfaction of reporting an increase in the number of members.

"Since the last annual meeting the sum of £76 has been distributed in prizes for essays.

"The Council deem it of great importance to maintain the efficiency of this branch of the society's operations, and they have issued the following offers of prizes for essays, to be sent in for adjudication next year:—On Pigs, £15; on Steam Cultivation, £25; on Potatoes, £10; on the comparative Value of Cake, Corn, and Roots in making Flesh and Manure, £20; on Autumn Cultivation, £10; on the Training of Farm Servants, £15; and lastly, on a subject for which they hope that the present gathering will furnish fertile suggestions, On the Connection, both Agricultural and Commercial, between the West of England and South Wales, £20.

"After careful consideration, the Council have thought it for the interest of the society to again engage the services of Professor Brown, and he is accordingly acting as veterinary inspector at the Cardiff Meeting. Arrangements have been made in conjunction with this appointment, which, it is confidently hoped, will obviate difficulties which have sometimes arisen in the selection of stock entitled to compete for prizes.

"The Council desire specially to direct the attention of the members and friends of the society to the financial statement published in the Journal.

"The circumstance that the increase of members is not followed by a proportionate increase in the available resources of the society, has engaged the attention of the Council, and a committee of their number has reported the result of an investigation of the subject. It appears that a considerable proportion of our members are of the class entitled to the privileges of the society on payment of an annual subscription of ten shillings, which amount is almost, if not entirely returned in the form of a copy of the Journal, and free admissions to the show-yard and other privileges, leaving little, if any, balance applicable to general purposes. Many gentlemen who might have claimed the advantages of membership at ten shillings per annum, have from the first subscribed double this amount, and several others have lately followed their example. The Council hope that many more may be encouraged to adopt the same course, as it is only by a permanent and substantial increase in its resources that the society can be maintained in its present state of efficiency. The receipts for admission to the show-yard have hitherto proved a most important and annually-improving branch of revenue; but it must be remembered that this is liable at any time to be seriously affected by the contingency of unfavourable weather and other causes.

"On the recommendation of the Implement Committee and their Engineers, the Council think it right to add that they have adopted some new regulations, as conditions to be complied with by all exhibitors of steam engines, the result of which they hope will be to secure to the practical farmer the opportunity of witnessing in operation in the yard engines possessing greater simplicity and more permanent efficiency than heretofore."

Mr. Sillifant was elected president for the ensuing year; and Mr. Clement Bush, of Weston, near Bath; Mr. Caldwell, of Lackham house, Wilts; Sir J. Duntze, Bart., of Starcross; Mr. E. S. Drewe, of the Grange, Collumpton; Mr. Walrond, of Bradfield; Mr. Langford, of Ashpool, near Barnstaple; Mr. Pitts, of Drewsteignton; and Mr. John Drew, Jun., of Powderham, near Exeter, were elected members of Council, in addition to a number of re-elections. Mr. Buller, M.P., and Mr. R. K. King, are the vice-presidents.

THE TREATMENT OF LAMBS AS A PREVENTIVE TO DISEASE.

The paper read by Mr. Marshall to the members of the London Farmers' Club was both novel and instructive. Although the discussion that followed upon it did not greatly elucidate the subject, still sufficient was advanced in corroboration of his statement to lead us to infer that hereafter it will tend to a beneficial result.

"Any infringement of the organic laws," Geo. Coombe observes, "will inevitably lead to a derangement of the system;" and it is to this circumstance that the origin of the disease is to be traced. Sheep in their natural state are not subjected to feed on the same pasture continuously for any great length of time together, but travel from one portion to the other, as it suits their inclination. In no instance, either, do the lambs leave their mothers until late in the autumn, or when they become able to provide and assimilate their food properly, and at a season when the autumnal showers have rendered it succulent and adapted to their constitutions.

This premised, let us examine the method pursued by our sheep-breeders as regards their young stock. At a very early period the lambs are separated from their mothers, and are at once placed upon artificial grasses, at a season when these are so far ripened as to be totally unsuitable to the tender stomachs of the lambs. The sudden transition from the milk of the ewe to the dry summer food that succeeds, is beyond the power of their digestive organs to assimilate properly; consequently general derangement of the stomach and system immediately follows, and of which the small thread-like worms that are found in the lungs are but the indication.

It has been established as a principle among the medical profession, that upon any sudden change taking place in the quality of the food, disorder in the digestive organs is pretty certain to follow; and this is so palpable to every one, that it requires no argument to prove that such is the case. With herbaceous animals also the same result will invariably follow—instance that of a horse when taken suddenly from dry food, and put upon pasture, or *vice versa.* The fact is, the gastric juice of the stomach in process of time adapts itself to the task it has to perform, and when once so adapted, requires time for it again to suit itself to any other description of food to which it may be subjected. A lamb in its early stages is dependent almost entirely upon its mother's milk for subsistence, and for several months from its birth mainly so. Imagine then its being at once taken from the ewe, and placed upon food entirely of a different character, which, as we before stated, it is unable to digest! Disturbance of the system at once follows. This is attended with loss of appetite and fever; parasitic worms, as alluded to, are engendered in the vessels of the throat and lungs, and which, from their constantly irritating those important vital organs, soon terminate the life of the animal, to the great loss of the owner.

We have analogous cases in other descriptions of live stock—in young calves especially, taken too early from their mothers, or improperly fed upon food that they cannot digest. Milk, when taken into the stomach of a young animal, becomes immediately coagulated by the action of the gastric juice, and digestion then follows in the natural way. But if, as in some cases, any admixture of other substances be made with the milk previously to giving it, in the early period of rearing, so as to prevent the coagulation of it when taken into the stomach, an unhealthy condition of the animal follows. The coat stares, a cough ensues, and all the symptoms that are attendant upon the diseased lambs become apparent. Small thread-like worms fill the cavities of the lungs and windpipe; and the animal dies, unless medical aid be procured in sufficient time to arrest the disease. This is generally effected by the inhalation of gases destructive to the parasites, or by admixture of linseed oil and turpentine, given for the same purpose.

It may not be considered out of place to add here some remarks upon the nature of parasites in general. In every case they ought not to be considered as primary, but as secondary, indicating the existence of disease rather than producing it. For instance, animals in an unhealthy or impoverished state become infested with parasitic lice, whilst those in healthy condition are free from them. Parasites, also, that attack the internal organs are invariably the result of previous disorganization of the system. Even with trees and vegetables the same laws prevail. The branches of trees, when diseased, become covered with lichens and fungi, from which the other portions in a healthy state are free. Bodies entering into decomposition also engender worms innumerable, and even vinegar itself abounds with myriads of small thread-like worms, under certain conditions of temperature or chemical change.

From all, then, that has been adduced, we arrive at the following conclusions—

1st. That the sudden removal of the lambs from the support derived from their mothers at too early a period produces disorganization of the digestive organs, which cannot be overcome unless the food that is supplied is of a highly nutritious quality, and easily to be assimilated in the stomach of the young animals. For this purpose young succulent pasture-grass appears to be best adapted.

2nd. That the present mode of keeping sheep in large numbers upon arable land and dry artificial grasses is totally at variance with the natural habits of the animal; that under such management the lambs, from their tender nature, are the first that suffer; and that when grazed upon land of a sterile character, the nutritious portions of the food become diminished in ratio to the quality of the soil upon which it is grown.

3rd. That the early period of removing lambs from the ewes tends greatly to produce disease, inasmuch as such treatment is directly contrary to that which would take place under the ordinary course of nature.

The remedy, therefore, becomes apparent—that this sudden transition be as far as possible avoided, by suffering the lambs to continue longer with the ewes; and that, when removed from them, the food supplied be of a succulent and nutritious character, with a proper admixture of nourishing dry food in addition. If the weather be hot and dry, a plentiful supply of water should be at all times given them.

FERMENTATION AND BREAD-MAKING.

Fermentation is that spontaneous change which, in various forms, takes place in animal and vegetable substances, producing new fluids and gaseous compounds. It is of three kinds, namely, the *vinous*, producing *alcohol*; the *acetous*, yielding *vinegar*; and the *putrefactive*, of which the products are very variable, and usually fetid. The two former may be considered as merely decompositions, the latter that of decay.

"When the expressed juice of the grape, &c., is exposed in warm weather to the air, which is necessary to the operation, it soon becomes turbid: its temperature rises a few degrees, a motion takes place in the fluid, and minute bubbles of air form and break. If the process goes on, a thick froth, consisting of those bubbles and viscid matter, rises to the surface; and when these bubbles have burst, a viscid substance falls to the bottom of the vessel. This possesses the property of causing fermentation to take place in other fluids, which without its presence would not undergo such a change. This substance is called *yeast*."

In order to observe what happens during the vinous fermentation, dissolve some sugar in four times its weight of water, and add to the solution a small quantity of yeast obtained as above described, or from the fermentation of beer. Expose this mixture, in a glass with a bent tube, and a bottle for receiving the gaseous products, to a temperature of about 75 degrees, it will soon be found that the substances will so act upon each other as to produce carbonic acid, which will be found in the gas bottle, while the sugar will gradually disappear, and the flask will contain a mixture of water and alcohol, or spirits of wine; this is separated by distillation. These changes occur without the interference of the air or its oxygen; nor does it appear that water is decomposed, or that anything is added by the yeast. It seems, therefore, that when sugar is deprived of its oxygen and carbon in the form of carbonic acid, it is converted into alcohol. Now alcohol consists of 3 equivalents of hydrogen, equal 3; 2 of carbon, equal 12; and 1 of oxygen, equal 8; its equivalent therefore is 23. In order, therefore, that the alcohol and carbonic acid alone should be produced from sugar, this last substance should consist of 3 equivalents of hydrogen, equal 3; 3 of carbon, equal 18; and 3 of oxygen, equal 24; giving 45 as its equivalent. On this admission, the production of alcohol by the separation of carbonic acid from sugar may be thus shown:

	Hydrogen.	Carbon	Oxygen.
Suger......	3	3	3 equivalents.
Carbonic acid	0	1	2
	—	—	—
Alcohol	3	2	1

This will, however, show that sugar contains a larger quantity of carbon than is usually assigned to it. According to Gay Lussac, 100 parts of sugar should yield 48.76 of carbonic acid, and 5.24 of alcohol, which is very nearly in accordance with the foregoing theoretic statement.

Although sugar appears to be the only vegetable matter that yields alcohol by its decomposition, yet it is to be observed that pure sugar suffers no fermentation. In the juice of the grape, as well as in some other cases, there is some accompanying matter which acts as a ferment; and when yeast is thus spontaneously produced it causes fermentation in sugar without, so far as appears, adding anything important. Indeed it is stated that scarcely 2 per cent. of this substance suffers decomposition. It will therefore almost appear to produce the effect by what has been termed "*an action of presence*," and by Berzelius denominated "*catalysis*."

In brewing, distilling, and vinegar-making in this country, the substance fermented is malt, in which the starch that the grain contains has by incipient vegetation been converted into sugar, and thus rendered fermentable.

In the acetous fermentation the materials employed are similar to those used for the vinous, but the temperature employed is higher. Little acetous acid is produced unless atmospheric air is present, the oxygen of which must combine directly with the requisite proportion of oxygen and carbon that constitute acetic acid. But as alcohol may be converted into vinegar, as indeed is practised in wine countries, it is possible, even when sugar is produced from malt, that the previous formation of alcohol may occur. And this view will best explain what happens, and show that by the mere absorption of oxygen, so as to form water, and without the evolution of any carbonic acid, acetic acid may be formed.

With respect to the putrefactive fermentation, it is to be observed that it is spontaneous decay and decomposition of vegetable and animal matter, which is unaccompanied with the production of alcohol or acetic acid. In the vegetable putrefactive fermentation, the principal product is carbonic acid, and probably water; both derived from the combination and absorption of the oxygen of the air, which unites with the hydrogen and carbon of the vegetable matter. In the putrefactive fermentation of animal matter ammonia is a very usual product, owing to the presence of azote, which enters largely into the composition of animal matter in general; and thus, by uniting with the hydrogen, the alkali just mentioned is produced.

BREAD-MAKING.

When flour is made into a paste with water, the mixture is called *dough;* and when this is suffered to remain in a moderately warm place, it undergoes that partial and spontaneous decomposition which is called fermentation, and which, in order to distinguish it from other kinds, has been called, but without sufficient reason for the distinction, the *panary fermentation.* During this fermentation, a portion of the carbon and oxygen of partially-decomposed flour recombines, so as to form what is sometimes called *fixed air*, but correctly *carbonic acid gas.* This, during its natural tendency to escape into the air, is arrested in its progress through the dough by the adhesiveness of the gluten, and forms, owing to its retention, numerous cavities in it. It is thus that wheat-flour makes lighter bread than that of oats or rye, owing to the larger quantity of gluten it contains, by which the bread is rendered more porous and lighter, and consequently more digestible.

This plan of fermentation would, however, not only require much time, but dough thus spontaneously fermented is never quite free from putrescence and acid, both of which are injurious to the flavour of the bread. To remedy these inconveniences, the process was formerly accelerated by adding to a mass of recent dough a quantity of old dough in a state of strong fermentation: this was called *leaven*, and the mass to which it was added was said to be *leavened.*

Although the use of leaven was an unquestionable improvement, a still further one was made by the employment of yeast instead of it: by this, the fermentation is much more rapidly and perfectly effected. The exact nature of this ferment has not been ascertained; it is the frothy scum that rises on the surface of beer during its fermentation: it is a very compounded substance, and it is by no means determined to what portions of it the fermentive power is particularly owing. It appears to contain gluten, but that alone is not sufficient to account for the effects produced, as it is incapable of fermentation *per se.*

When the baker proceeds to the preparation of dough by means of the yeast fermentation, he at first takes generally a portion only, but sometimes the whole, of the water wanted to make the requisite quantity of dough. In this water, which varies in temperature, according to circumstances, from 90 to 100 degrees, there is dissolved a certain portion of salt; but less than that which will finally be required, in order to communicate the necessary flavour to the bread. Yeast is now mixed with the water, and then a portion of flour is added, which is always less than the quantity to be ultimately employed in forming the finished dough. The mixture is next covered up, and set apart in a warm situation; within an hour after which, signs of commencing decomposition make their appearance. The substance thus placed apart is termed, in the language of the bake-house, the *sponge*: its formation and abandonment to spontaneous decomposition is termed *setting the sponge,* and according to the relation which the amount of water in the *sponge* bears to the whole quantity to be used in the dough, it is called *quarter*, *half*, or *whole sponge.* The sponge begins to swell out and heave up, evidently in consequence of the generation of some internal elastic fluid, which in this instance is always carbonic acid gas. If the sponge be of a semi-liquid consistence, large air bubbles soon force their way to the surface, when they break, and dissipate in rapid succession. But when the sponge possesses the consistence of thin *dough,* it confines this gaseous substance within it, until it dilates equably and progressively to nearly double its original volume, when, no longer containing the pent-up air, it bursts, and subsides. This process of rising and falling successively might be actively carried on, and frequently repeated, during twenty-four hours; but experience has taught the baker to guard against allowing full scope to the energy of the fermentative principle. He generally interferes after the first, or at farthest after the second or third dropping of the sponge; and, were he to omit this, the bread formed from his dough would invariably prove sour to both taste and smell. He therefore, at this period, adds to the sponge the remaining portion of flour, water, and salt necessary to form the dough of the required consistence and size, and next incorporates all these materials with the sponge by a long and laborious course of kneading. When this process has been continued until the fermenting and the newly-added flour have been intimately blended together, and until the glutinous parts of the flour are wrought to such a union and consistence, that the dough, now tough and elastic, will receive the smart pressure of the hand without adhering to it when withdrawn, the kneading is for a while suspended. The dough is left to itself for a few hours, during which time it is in a state of active fermentation, now diffused through its whole extent. After the lapse of this time it is subjected to a second, but much less laborious, kneading, the object of which is to distribute the gas engendered within it as equably as possible throughout its entire constitution, so that no part of the dough may form a *sod* or ill-raised bread, from the deficiency of this carbonic-acid gas on the one hand, or a too vesicular or spongy bread on the other.

After the second kneading, the dough is weighed out into the portions requisite to form the kinds of bread desired, which are once more set aside for an hour or two in a warm place. The continuance of fermentation soon generates a sufficient quantity of fresh carbonic acid gas within them to expand each mass to about double its former volume. They are finally baked into loaves, which, when they quit the oven, have attained a size nearly twice as bulky as that at which they entered it. It should be remarked that the generation of the due quantity of elastic fluid within the dough has been found absolutely necessary to be complete before placing it in the oven, because as soon as the dough is there introduced, the process of fermentation is checked, and it is the previously-contained air which, expanded by heat throughout all the parts of the entire system of each loaf, swells out its whole volume, and gives it the piled and vesicular structure.—From *The Penny Cyclopædia.*

CANADA, AS A FIELD FOR SETTLEMENT.

We have from time to time directed prominent attention to the province of Canada, as a field for settlement, because of its proximity, of its suitability for the extension of English agriculture, and of its rapid progress in all the elements of wealth and prosperity. A paper recently read by Prof. J. Wilson deserves special notice, because of the fulness, authenticity, and recent date of its statistics, and its utility therefore as a reliable handbook for emigrants.

The Canada of 1858 is a very different colony to what it was even eight or ten years ago. It is now peopled by two millions and a-half of settlers—as many souls as this great metropolis contains. It has over 1,650 miles of railroads in operation, besides several hundred more in course of construction ; it has splendid canals, and natural water-communication, and telegraph wires conveying information from one end of the province to the other, at a charge so low as to put to shame this and all other countries. Its public works and buildings are on a magnificent scale—witness the Victoria Tubular Bridge now forming across the St. Lawrence.

The amount of tonnage frequenting its ports and waters surpasses that to any other British colony. Its imports reach £11,000,000 or £12,000,000 a year, and its exports £8,000,000 or £9,000,000, equal to nearly £4 per head of the population.

British industry has cleared forests in the Ottawa valley, and opened up a new field for settlement, of which the city of Ottawa, now made the capital of the province, is the centre. Free grants of land have been thrown open to those who will avail themselves of them—an unexampled privilege at present in the British colonies. So fast is the country filling up, that the colonial government are even now looking out for extended boundaries, and will have the fine field of the Red River settlement, formerly held by the Hudson's Bay Company, whenever they are prepared to fit it for settlers by opening road communication, &c. But there is yet abundance of land lying idle in Canada, waiting for industry to render it prolific.

From the last report of the Commissioner of Crown Lands it appears the total number of acres of surveyed land unsold in Canada is about 6,750,000, and of unsurveyed 168,800,000, which, added to private lands undisposed of, makes a total, in that part of Canada drained by the St. Lawrence and its tributaries, conjectured at 212,000,000 acres. Of this quantity there were in Western Canada 830,398 surveyed, and 57,770,500 unsurveyed ; and in Eastern Canada 800,000 surveyed, and 112,000,000 unsurveyed.

The price of the crown lands set apart for actual settlement is payable in two ways : first, in money, at the lowest rate and on the easiest terms ; and second, in labour and occupation, of an equally specific and definite description. There is not a town or a village, from the Gulf of the St. Lawrence to Lake Huron, that was a century since a part of the vast wilderness trodden and hunted over by the Indian, that does not prove that colonisation may be made the source of boundless wealth.

The classes most likely to succeed in Canada are, first, men of speculative enterprise, and possessed of some capital, which they are willing to hazard in colonial investments ; next, persons of limited incomes, determined to make provision for future comfort ; and, lastly, those whose patrimony lies in the labour of their hands. The great extent of rich land, free from heavy impost or burden, has hitherto caused the chief attention of the colonists to be devoted to the raising of agricultural produce for export. The productions of the field are indeed the true tests of a country's wealth and progress ; and by these we can form the safest estimates of its present as well as future capabilities. Now, the value of the animal and vegetable produce of Canada has more than quadrupled in the last six years. In 1856 it was valued at nearly £4,000,000 sterling. In 1851 the gross wheat produce amounted to rather more than 16,000,000 bushels, in 1856 it was 26,500,000 ; raising the return from about 9 bushels to 10½ bushels per head of the population.

Last year we imported 115,000 quarters of wheat, besides flour, from British North America ; and in other years our wants may be much larger. With the United States, under the reciprocity treaty, a large and profitable trade is being carried on ; and we need not point attention here to the immense and valuable products of the forest, yielding a large revenue to the lumberers for their timber, spars, ashes, &c. But Canada has been also paying special attention to the rearing of live stock ; and under all the heads of domestic cattle, she now stands before the American state of Ohio, one of the most enterprising and advantageously situate in the Union.

The Leviathan, which is to make her first voyage to Portland, will doubtless carry over a large number of passengers destined for Canada. The cheapening and shortening the Atlantic passage, and the successful deposit of the ocean submarine cable, will be new links drawing closer the communication with the mother-country. Last year saw an increased emigration to Canada ; and doubtless this year will see more go. We wish them all well. Those who go and those who stay are mutually beneficial to each other. And sure we are that the settlers in Canada will never forget Old England.

To conclude, in the words of Professor Wilson: "The motto of Canada is, 'Industry, Intelligence, and Integrity,' and her emblem is the Beaver. These three qualifications are required by all who desire to make speedy and honourable progress in life, and, when possessed and exercised, they cannot fail, humanly speaking, to command success in Canada. There are no monopolies, exclusive privileges, or great and impassable barriers between grades of society, such as exist at home, to check or arrest the progress of the honest and industrious, but poor man. Canada is essentially 'a land of hope not to be disappointed,' the more especially for labour, whether skilled or unskilled—a land where there is 'work and bread for all,' and where the certain prospect of prosperity never fails to lessen daily toil, and cheer the heart which has the courage to trust in itself, and believe in its right and power to acquire an honourable position among mankind, with a full share of the blessings and privileges which justly belong to a free and honest life."

THE ORIGIN OF GUANO.

It has always been our opinion, from many considerations, that guano is not principally formed from the excrements of sea-fowls; and we have that suspicion strengthened by the communication with which we shall close these notes.

We have never felt satisfied that birds would congregate in such countless multitudes as to form these accumulations of guano; and we always raised the inquiry—Why do the birds flock there? Certainly, not merely for the purpose of depositing their excrements!

Then we also observed that the analysis of guano, and its very appearance, agree better with the supposition that it is the remains of decayed fat and flesh, than of the same organic products after being digested.

The following is the analysis of some guano from the Chincha Islands, presently to be mentioned:—

Water	8.5
Sulphate of potash	6.0
Muriate of ammonia	3.0
Phosphate of ammonia	14.2
Sesqui-carbonate of ammonia	1.0
Sulphate of ammonia	2.0
Oxalate of ammonia	3.3
Organic matter	18.5
Silica	1.2
Urate of ammonia	14.8
Oxalate of lime	1.0
Subphosphate of lime	22.0
Phosphate of magnesia and ammonia	4.5
	100.0

We have only further to observe, that Captain Bulford is a person perfectly trustworthy, and is well known to us.

"Guano, or Huano, is composed of the decomposed bodies of seals, aquatic birds, and their deposits. The birds are penguins, pelicans, Solan geese, and a small bird resembling the divers seen in our channels. There are other kinds, but those I have mentioned are the most numerous. Perhaps, were I to describe the present state and appearance of one of the islands that, as yet, is undisturbed, it may better convey an idea how guano has been formed than anything else I could write.

"The Chincha Islands are three in number, extending about seven miles in a north and south direction, about twelve miles to the west of the town of Pisco, on the coast of Peru, and about 120 miles to the south of Lima. The north and middle islands are those from which all Peruvian guano has been, and is yet being taken. The south island is untouched, and remains in its natural state. I landed several times on this island, for the purpose of getting birds' eggs. It is about three miles in circumference, and the middle and highest part is about seventy feet above the level of the sea, with a deposit of guano of twenty-five feet at its greatest depth. Like the other two islands, there is no vegetation of any kind on it; and, from the innumerable bird holes in the guano, it has the appearance of a rabbit warren. These holes run about a foot or two feet from the surface, in every possible direction, and as they are from five to ten feet long, frequently running into each other, the guano for two or three feet from the surface is perforated like a honeycomb. In each of these holes are birds like divers sitting on their eggs; and, in turning up the guano to get at the eggs, we often turned up dead birds, old ones, that had, doubtless, crawled into these holes to die, and would in all probability, if we had not disturbed them, added, in the course of ages, to the stock of guano.

"I believe it is well known to naturalists that seals generally congregate to one place in common, to die; and observation on this island goes to establish that fact, for although thousands of seals are seen on it, in every stage of decomposition, none are seen on the main land. The general opinion is, that the seals, when ill, have crawled up as high on the island as they could. The guano being soft, from the innumerable perforations, they soon work a bed for themselves, which may account for their being found generally half buried, and prevented from decomposing as fast as they would on rocks, sand, or any other substance; for guano is well known to preserve dead bodies from putrefaction. I have seen many dead seals on the south island, in a dried state, like mummies; the skeletons of others, that a kick would send into dust; and parts of skeletons, fins, &c., bodies of pelicans and other birds in the same state, which, in my opinion, all goes to prove that guano is composed of the bodies of seals and birds, more than the excrements of birds. My friends told me it was ten years since they first visited the islands, and that the south one had undergone no change. The bodies of the seals were then as they now are, which proves decomposition of bodies in and on guano takes a long time. Eggs, in a sort of petrified state, are frequently found many feet deep in guano. Much sal-ammoniac, in pieces from the size of a marble to a man's fist, is also found some ten to twenty feet from the surface. I have some now in my possession, the scent of which is as powerful as any sal-volatile I ever smelt.

"When last I was at the Chinchas, in October, 1857, they were shipping 40,000 tons of guano monthly to Europe and America, and, at that rate, it was expected to last eight years. The guano on the north and middle islands is about half done. The greatest depth on the north island is fifty-five feet, and on the middle about forty-five. The south has the least—twenty-five. The base of the three is the same, viz., rocky; of what kind I cannot say, but the same as the rocks on the south coast of Ireland. On each of the islands that are being worked are many miserable huts for the labourers, and vagabond Peruvians, with merchandise from Pisco. The governor is a Peruvian colonel, who has 100 soldiers under his command, to keep the Chinese slaves and the Peruvian labourers in order. There are about 800 Chinese, who were brought over from China in English ships, chartered by the Peruvian government to bring Chinese emigrants to California, but which were to call at Pisco for orders; and when the ships arrived at Pisco, the poor Chinese were landed, and made virtually slaves; but, as they each get two dollars per month, they receive a wage.

"Ships anchor close to the islands, in deep water, from twenty to fifty fathoms. I anchored in forty, about half a mile from the shore. Beef and vegetables are brought from Pisco. The price of meat, which is very inferior, is 7d. per pound. Ships bring water with them from Callao, and are bound by charter-party to land a certain quantity on the islands, by which means they are supplied with water. The ships are loaded either by boats or under a shoot, were the ship is moored close to the rocks, and the guano run down from a height of 110 feet. I loaded by the latter, and took in 1,300 tons in four days. The place abounds in fish, but not of a very first-rate quality, being principally albecore, horse mackerel, and a sort of mullet. At certain seasons flying-fish are very abundant. The islands are the property of the Peruvian government, who commission Messrs. Gibbs to charter ships and *sell* the guano.—J. BULFORD."
—*From the Cottage Gardener.*

THE TRADE IN MILLET.

What is Millet? Doubtless every reader will think he can very readily reply to this simple question; but we fancy that, like the definition of corn, it will vary considerably with the locality and the extent of the knowledge of the person answering. What is corn in England is not corn in the United States; for while we apply the term to wheat, the Americans restrict it to maize. In Scotland the name is given to oats, and still farther north, in Sweden, barley is the breadcorn of the country.

So with the term Millet, the word has a widely extended signification, and embraces the edible seeds of grasses of various families very dissimilar in habit and appearance.

What is generally known as Millet in popular parlance in England, is the seed, chiefly yellow, of the Panicum miliaceum, sold in seed shops for feeding small birds. But the term takes in a much wider range of product, as we have already stated; and although the culture of the millets is little attended to in England, yet in many countries they form large and important staple food-crops, and considerable quantities are imported here in some years. Thus if we trace back a few years, we find the imports have been respectively in—

1853	158,159 cwts.
1854	16,470 ,,
1855	58,263 ,,
1856	41,284 ,,

For 1857 we have no returns yet.

The consideration of the millets is not without interest, therefore, both in a commercial and an agricultural point of view; and since there is little accessible information on these plants, we propose to say a few words on their peculiarities and uses, and shall endeavour to reconcile some discrepancies which are very apt to lead those astray who have not looked closely into the subject.

The question propounded at the head of this article is one that occurred to us, as it may very probably do to others, who, in passing through the Food Department of the South Kensington Museum, linger over the interesting case of millets, in the ear and in the grain, contributed by Mr. P. L. Simmonds, a gentleman who has devoted much study and attention to the diffusion of sound information connected with commercial and agricultural products.

If we turn to an ordinary dictionary, we shall find "Millet—the name of a plant;" and Simmonds' recent "Dictionary of Trade Products" tells us that "millet is a common name for several species of small seed corn, which on the Mediterranean coasts are generally called dhurra, in the West Indies guinea corn, &c." But we want something more precise than this; and although we cannot branch out here into an abstract definition as to what is millet and what is not, and where the line of demarcation of these small-seeded grains is to be drawn, we can at least look at the matter in a popular and useful point of view, and show what are the millets popularly so termed, cultivated in different countries, and what are their local and generic names.

Firstly, then, we have the common or small millet (the Panicum miliaceum), that which is chiefly cultivated in Europe, with smooth shining, ovate, yellow seeds, but of which there are three other varieties, with grey, white, or black seeds. Closely allied to these are the Setarias, the Italian millet (Setaria italica), with seeds tinged with green, and the German millet. (S. germanica), having seeds of a dark grey colour, the latter being much grown in Hungary, for horse forage, as green food. And there are two other varieties of this millet—a red-seeded, and a small whitish seeded.

Next we have the Polish millet (the Digitaria sanguinalis), esteemed for its seeds, which in various parts of Europe, where it abounds, are boiled with milk, and eaten like rice.

In Austria millet is cultivated chiefly in Moravia, South Hungary, and Lombardy. It is also grown to some extent in parts of France, but almost exclusively for forage. Our imports of millet in 1856 were derived as follows:—15,000 cwts. from Wallachia and Moldavia, 1,330 cwt. from Austrian Italy, and 25,000 cwt. from Turkey, Syria, Palestine, and Egypt.

Passing now to Africa, we find millet—but a much larger and more prolific grain—enters generally into cultivation. The millets chiefly grown in the African countries bordering on the Mediterranean are species of sorghum, known under the general name of Dourah. There seem to be three leading species, with short close-set panicles, having either white, red, or olive-coloured seeds, probably Sorghum vulgare, S. rubens, and S. bicolor. There is also a black-seeded variety (Sorghum saccharatum), grown in India and China, and now more diffused, cultivated chiefly for its saccharine juice. Lately another sorghum has attracted some attention in this country, Europe, and America (apparently S. caffrorum), from the endeavour to introduce it as a sugar plant. This is the Kafir cane of Natal, or the Imphee of the Zulus, introduced into notice here by Mr. Leonard Wray. This is not the Kafir millet, or mabaalee, which is used as the staple corn food of the natives, for of this there are a dozen or more varieties.

Now many of the sorghums have rigid and compact heads, while others have loose and spreading panicles; and the colour of the seed or grain appears to vary considerably, so that there is some difficulty, in the absence of precise information, identifying them or naming them botanically, amid the scientific complexities of Andropogon, Holcus, and Sorghum, to which different authors respectively refer them. Then they bear various popular names in different countries; the broom corn of the United States, the Negro or Guinea corn of the West Indies, the Dourah of Africa, and the Jowarri or Cholum of India being evidently the same plant and seed.

The sorghums require a more tropical climate to bring their seed to perfection than the common millet, but yield a much greater quantity of seed per acre than other grains. Dourah is produced in considerable quantities in Upper Egypt, where it is cultivated with much success; and being forty or fifty per cent. lower in price than wheat, is more commonly the food of the fellah or peasant than any other grain.

Three leading species or varieties of this great millet are also grown in India, under the local names, in the peninsula, of Munja cholum, Mootho cholum, and Secapoo cholum.

Several species of Panicum are cultivated in different parts of India: thus the Panicum frumentaceum is called shamoolo, in the Deccan; P. colonum, millet-rice; P. italicum, ragee; P. pilosum, bhadlee; P. miliaceum, warree and samee cheena, of which there are several varieties. Besides these, we have the spiked millet or bajree (Penicillaria spicata), called cumboo in Madras, which is also grown in several parts of Africa.

The seeds of Amaranthus frumentaceus, A. oleraceus, and other species, constitute other eastern millets.

Paspalum scrobiculatum, the menya or kodro of India, furnishes a small cheap grain, which is regarded as wholesome, in common with aulloo (P. frumentaceum) and other species.

A fine-grained corn, called fundi or fundungi on the west coast of Africa, is produced by Paspalum exile. Eleusine tocusso is a millet corn plant in Abyssinia, and E. corocana in several parts of the East; while the grain of E. stricta is even used in India, in times of famine. Setaria italica is cultivated in India under name of kala kangra, or kora kang; and the Poa abyssinica yields the teff of parts of Africa.

The canary-grass may be ranked among the millets; for in its native islands the seed is ground into flour, and made into a nutritious bread, by the inhabitants; and from one to two hundred thousand bushels are annually shipped thence.

The small seeds of the sesame (Sesamum orientale and indicum of Willdenow) are prepared in various ways for food in the East, being parched, as also made into bread, puddings, used in soups, &c. This is the oily grain of some writers, it being largely used to express the gingelie oil from—a bland oil largely used for culinary purposes. The seed is called ajonjoli by the Spaniards in Central America, and teel in India.

Here, then, we close our passing glance at what may be termed the millets, some of which are known as *petit mais* to the French colonists in Africa. Their uses, it will be seen, are more various and important than generally supposed. On the continent, and especially among the Germans, where the grain of millet is hulled, it is highly esteemed for broths, puddings, and even for bread. The plants are much grown in several countries as an excellent cattle provender; the grain is largely consumed locally, and from some quarters much is exported; while even sugar, vinegar, spirit, and millet-beer are yielded by several, and the stalks of others are grown for making brooms. The larger millets are as rich, too, in protein compounds, as many varieties of English wheat, and hence large quantities occasionally reach Mark-lane to be ground up into flour.

THE COMMERCE OF THE UNITED STATES—CHICAGO.

We have recently ventured some observations on the system of agriculture pursued in the American States, for the purpose of showing that although new land to a vast extent is being continually brought under cultivation, yet that whilst there is still such an abundance to be obtained at so cheap a rate and of so excellent a quality, the system of cultivation will still be of a character to impoverish the soil and decrease the produce per acre. Consequently the increase arising from the newly-broken-up land makes no adequate addition to the aggregate amount, but is, to a large extent, swallowed up by the increasing population on the one hand, and in supplying the older States on the other, where the continuous scourging of the soil has been followed by the inevitable deterioration and diminution of the produce.

If, however, this is the case with the agriculture of the United States, its commerce is conducted upon very different principles, and displays an activity and power of expansion of the most wonderful kind. The commerce of Britain has been the growth of ages, and is certainly settled upon a firm and permanent basis; but that of the United States has produced the same results in an infinitesimally short period of time, and, so far as we may judge, with permanent effect. The discrimination with which our Transatlantic cousins seize upon the most favourable spots for their commercial centres, and the extraordinary rapidity with which their capabilities are developed, is one of the most prominent characteristics of that country and its energetic people. States, cities, and towns are in a manner "born in a day." No sooner is the eligibility of a spot ascertained than a population gathers around it, like bees, in swarms; and all the means and appliances necessary for rendering its capabilities available, spring up as by magical enchantment. Establishments are formed, communications opened, facilities explored, and capital brought to bear upon them, in a manner perfectly marvellous; and the future prosperity of the place is guaranteed by the same moral energy that has originated its career.

Perhaps one of the most, if not the most, *par excellence,* remarkable instance of this rapid growth is the city of Chicago. We have on a former occasion spoken of this wonderful place, and its extraordinary increase. Since then it has passed through an ordeal of no ordinary kind, and which, in any rising city or town in Europe, would have thrown back its prosperity for years. Chicago perhaps, at the time, felt the shock of the panic in quite an equal degree to the older cities of the Union; but confidence in its resources, and in the general stability of the banking system, quickly restored the equilibrium of the public mind, and at this period commerce at Chicago has resumed its onward course. We have just received the "Sixth Annual Review of the Commerce, Manufactures, and the Public and Private Improvements of Chicago, for the Year 1857," &c., &c., from which we shall proceed to give a few statistical extracts, showing the manner in which cities are created in the United States.

Chicago is situated in the state of Illinois, and just at the head of Lake Michigan. It is now about fifty-five years ago, when two English gentlemen,* each possessed of large property, went to settle in Illinois. They purchased 20,000 acres of prairie land, but they had not a neighbour within many miles; being themselves the first settlers, we believe, of any account in the state. We shall not go into the history of that disastrous enterprize, and refer to it only to show at how recent a period Illinois was still "the wilderness." Since then, not only has Illinois become a rich and populous state, but several others have in like manner arisen round it, which are fast becoming, like it, populous and productive. Of these states, Chicago has become the emporium of commerce and the centre of communication, both by land and water, with the eastern seaboard.

The following statement will show the rapidity with which the population of Chicago has increased :—

In 1840	it contained	......	447	inhabitants.
1845	,,	......	12,088	,,
1850	,,	......	28,269	,,
1855	,,	......	88,509	,,
1857	estimated to contain		130,000	,,

It can be no ordinary superiority of situation that would have caused so rapid an accumulation of population; and although the commercial season is interrupted in a great measure for some months by the frost, we find that its internal trade, and that by railway, keeps the population in a constant state of activity; whilst its manufactures employ upwards of ten thousand of the adult inhabitants. We shall next give some statistics of the commerce of Chicago.

The capital expended in warehouses amounts to three millions and eighty-seven thousand dollars (£617,400 sterling), affording stowage for 4,095,000 quarters of grain. The facilities for "handling" or shipping the grain will clear off 1,340,000 bushels per day. The progressive increase of the corn-trade may be judged of by the following statement:

SHIPMENTS OF GRAIN.

Yrs.	Wheat.	Ind.Corn	Oats.	Barley.
	Bushels.	Bushels.	Bushels.	Bushels.
1838	78	..	..	..
1843	688,907	..	..	..
1848	2,386,000	550,460	65,280	..
1853	1,680,999	2,780,253	1,748,493	120,275
1857	10,783,292	6,814,615	416,778	17,993

SHIPMENTS OF FLOUR—FIVE YEARS.

	Brls.
1853	131,130
1854	224,575
1855	320,312
1856	410,989
1857	489,934

SHIPMENTS OF ALL KINDS OF GRAIN, AND FLOUR AS GRAIN, FOR FOUR YEARS.

	Bush.
1854	12,902,320
1855	16,633,813
1856	21,583,291
1857	18,032,678

The facility with which this large grain trade is conducted is its most notable feature. "To the casual visitor," says the pamphlet, "the grain trade does not appear to be near the magnitude that the figures show it to be. Our warehouses are all erected on the river and its branches, with railroad tracks running in the rear of them; so that a train of cars loaded with grain (*loose,* we presume) may be standing opposite one end of a large elevating warehouse, being emptied by elevators at the rate of from six to eight thousand bushels per hour, whilst at the other end the same grain may be running into a couple of propellers, and be on its way to Buffalo, Oswego, Ogdensburg, or Montreal within six or seven hours; and all this is done without any noise or bustle, and with little labour, except that of machinery," &c. The expense of the transmission, or "handling," of grain is very moderate. "To receive and ship grain from cars or canal-boats to lake-craft costs one-half cent. (a farthing) per bushel; while to receive, warehouse for fifteen days, weigh, and ship grain costs one cent. (a halfpenny) per bushel," &c. Such are the extent and facilities of the grain trade of Chicago

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* **Mr. Richard Flower and Mr. Birkbeck, brother of the late Dr. Birkbeck.**

The "provision trade" is equally in a progressive state of development. The number of hogs, live and dressed, shipped in three seasons, was as follows—

1854-5	54,156
1855-6	170,181
1856-7	103,074

The falling off in the last season is accounted for by 100,000 hogs being sent alive by railways early, which produced a scarcity when the season commenced.

The number of cattle killed and packed in seven years, with their weight, was as follows:—

Year.	No.	Weight.
1851	21,806	lbs.
1852	24,663	13,367,346
1853	25,431	14,019,905
1854	23,691	13,402,223
1855	28,972	16,932,137
1856	14,977	8,130,496
1857	19,127	10,354,500

A large butter trade is growing up, as will be seen by the following table:—

SHIPMENTS OF BUTTER.

1854	2,143,569 lbs.
1855	2,473,982
1856	2,668,928
1857	3,149,387

A rising trade in mines, wool, and stone—the latter quarried at Athens, Desplaines, and Joliet—are likely to increase largely the resources of Chicago. But the lumber trade exhibits an enormous development.

SHIPMENTS OF LUMBER.

1855	306,553,467 ft.
1856	453,673,169
1857	459,639,198

The shipping by which this large traffic is carried on is thus stated:—

NUMBER AND TONNAGE OF VESSELS ARRIVED AT THE PORT OF CHICAGO FOR FOUR SEASONS.

Year.	Number.	Tonnage.
1854	5,021	1,092,644
1855	6,610	1,608,845
1856	7,328	1,545,379
1857	7.557	1,753,413

These vessels employ from 60,000 to 70,000 seamen.

We have no room to speak at large of the railway traffic and its extension, centering in Chicago; and can only say, that there are upwards of thirty lines of rail connected with this city, of which eleven are trunk and twenty-one branch and extension lines, the total earnings of which for the year 1857 were 18,590,520 dollars. The whole of these lines, extending 3,953 miles, have, with the exception of about forty miles, been begun and completed *in six years.*

Such are the details of the rise and progress of this extraordinary city, which has risen out of the wilderness with a rapidity that sets all our Old Country notions at defiance. The firmness with which Chicago, after the first season of dismay, withstood the panic-shock, speaks volumes for the present stability of her institutions; whilst the rapid peopling of the neighbouring States, and the increasing facilities of intercommunication with all parts of the Union, guarantee to her a continuous prosperity—possessing, as she does, a position at the head of the Lake navigation the nearest and most accessible to the "far west" of any other port.

SHOEING: ITS PRINCIPLES AND PRACTICE.

The connexion which has so long existed between the science of veterinary medicine and the art of shoeing ought to have insured the improvement of the latter, however it may degrade the former; but from all accounts, the system of shoeing is very much what it was at its commencement—by no means free from grave objections, on the score of the injury that it does to the animal's feet. Notwithstanding the science that is brought to bear upon the question—notwithstanding all that Coleman, Bracy, Clarke, Turner, and others have written—horsemen constantly complain of bad shoeing, and its effects upon their animals' action. It seems pretty well decided upon what principles we are to proceed; still, the practice does not keep pace with our theory, and the reason of this we believe to be found in the absence of the proper knowledge in the proper quarter. The men who know how horses should be shod are not the men who shoe them, or in any decided way interfere with the work.

The absurdity of connecting the treatment of the horse's diseases with the shoeing of his feet is not even relieved by the advantage of superior care of finish in the work; the veterinary surgeon can only leave general directions, which may not even be noticed, or probably not be applicable to numerous cases; his personal superintendence being of course usually out of the question, although by it alone could he insure the carrying out of his intentions. To educate the workmen, as has been suggested, by the formation of schools for this branch, is an idea altogether out of the pale of feasibility. The country farrier who could afford to send his son to such a school can at the same time send him to the Veterinary College, where he studies, among other things, the anatomy of the foot, with especial reference to the application of shoes; he comes back probably with his diploma, and thinks of something beyond his hammer and anvil. And who shall blame him for it? Educate craftsmen in the science of their craft, and you destroy them; they seek instinctively for others less knowing than themselves to perform the drudgery they have learned to despise. We are not condemning popular education; we merely wish to show how little it will affect the mechanics of an art; so long as uneducated artizans can be found, so long will the educated ones allot to them the handiwork, reserving to themselves the right to conceive and direct.

The remedy appears to us to lie with the horse owner: the veterinary surgeon cannot be expected to devote his time to the inspection of the animals shod at his establishment; the men who make the shoes and nail them on are not likely to understand the science of the subject; therefore the owner has, in self-defence, to make himself familiar with the mechanism of the foot, its movements under various circumstances, and decide what system is best adapted for his purpose, taking care, by examination of the horses after shoeing, to see that his wishes are complied with. The amount of knowledge required is not extensive, and most men are sufficiently interested in the matter to take a little trouble about it.

During the course of our remarks we shall mainly aim at supplying a few directions which will enable the inquirer to avoid some very common mistakes, and to understand sufficient of the action of the foot to prevent the commission of any great absurdity in the selection of a system of shoeing. The situation and shape of the foot, we take for granted, are perfectly understood by everyone knowing anything about horses. The common terms applied to the different parts are also usually quite familiar; but, in case of any difficulty hence, we may just mention them. The whole of the hoof, from the termination of the hair down to the ground, is called the "wall." This "wall" or shell of horny matter bends inwards at the back of the foot, forming the "heel;" the front of the wall is called the "toe," and the sides the "quarters;" the concave bottom of the foot is the "sole," and the ground surface of the wall which surrounds it is the "crust;" at the back of the sole, between the two heels, filling up a triangular space, is a soft bulbous substance of thinner horn, called, from some unexplained reason, the "frog." The foundation of the foot is, as in all other cases, bone, over which is reflected a quantity of fibrous matter, covered by a membrane, from the vessels of which the horny covering is secreted.

The support of the horse's weight during rest and motion by these organs presupposes considerable elasticity or immense power of resistance. We can hardly imagine the part to exist in a perfectly passive condition, particularly when we discover that all its structures are arrayed to admit of motion. For a long time it was held, and doubtless is now supposed by many, that the foot expands at the time when the horse throws his weight upon it, the expansion being at the ground surface. The idea was, that, during this support of the weight of the body, the concave sole had a tendency to assume the form of a plane; in doing this its circumference would be increased, and consequently push out the ring of the wall to a corresponding extent. All this seemed satisfactory; there was no direct proof to the contrary, and the theory of "ground surface expansion," strengthened by Coleman's defence, was allowed to remain unmolested, until some one started the query, "How can the horny concave sole alter its shape in approaching the figure of a plane, without becoming detached from the sensitive sole to which it is perfectly adapted in every part—indeed, from which it is secreted?" This point not being open to a satisfactory solution, the opponents to "ground surface expansion" took fresh heart, and soon found fresh reasons against the theory. At present, experiments and investigations upon the dead and living organ seem to have perfectly established the following facts:—The hoof is thinnest and most easily moved at the heels, particularly the upper part of them. Pressure upon the bones of the foot removed from the limb causes the internal structures to descend slightly upon the horny sole, so far as the yielding of the intervening membrane will permit; but it in no wise causes any alteration of the form of the horny sole, although it may have been previously thinned out for the purpose of making it more elastic. These experiments, aided by reasonings on mechanical principles, lead to conclude that, while the animal's weight is thrown on the foot, the internal parts descend on to the horny sole, pressing firmly upon it. At the time of this descent, the fibrous pad at the back of the foot expands, and presses out the upper parts of the heel slightly; the ground surface does not appreciably alter its form.

Whether we accept the above explanation of the movements of the foot, or adhere to the old notions of expansion, one thing is quite clear, namely, that in the employment of shoes to the bottom of the hoofs, we should give preference to that plan which allows the largest amount of freedom. The necessity of protecting the sole of the organ by some hard material is quite evident; the points to be determined are the kind of material, and its methods of adaption. With a laudable wish to mollify the evil which must follow the fettering of the foot by an iron ring, experiments have been made with India rubber, felt, and gutta percha; but without even a temporary success. Iron being thus established as a necessity, it was suggested that a less injurious fastening than the nail might be found; accordingly, various clips, fixing the shoe by pressure to the sides of the hoof, were tried and failed; more lately, threads applied through carefully drilled holes, and, on their inefficiency being ascertained, wires were substituted; but in no instance did the experiments justify an attempt to introduce either system into practice.

After all our inquiry, therefore, it may really be said with truth that the present system of shoeing is precisely the system upon which the first shoe was applied—a piece of iron fastened to the sole of the foot by other pieces of iron driven through the horn. Taking the system, therefore, as we find it, it must be our object to see how this iron may be nailed to the hoof in a manner to allow the greatest freedom to all parts, consistently with the firm attachment of the shoe to its situation.

In shoeing, as in everything else, a good beginning is a great way towards a proper continuance; we therefore commence our suggestions by supposing we have a colt ready for work, and requiring to be shod as a preliminary proceeding; we understand, of course, that the animal has for some time previously been accustomed to have his feet lifted and slightly hammered, to remove any fear of injury from his mind. We will suppose that no brute force is necessary to spoil his temper, and render him vicious in the shoeing forge ever after; the subject is perfectly quiet, and we have nothing to do beyond preparing the foot, and attaching the shoe to it as expeditiously as may be.

In applying shoes for the first time, the difficulty is not in doing, but in leaving undone. Nature has really prepared the foot for us, and, beyond scraping off any loose pieces of horn, and levelling the crust, nothing is required. The shoe should fit the outline of the hoof, and be attached sufficiently to prevent casting, the nails being more on the outside than inside. Instead, however, of this simple system, the most elaborate preparation is considered necessary; the hoof is cut and rasped into what is thought to be the most advisable shape; a shoe that bears little or no relationship to the form of the ground surface of the hoof is applied; and a further rasping is required for the purpose of perfectly adapting the horn to the iron at its base. Here the first step is often taken towards causing contracted or brittle feet, and towards a further series of evils, all traceable to the single origin—bad shoeing. Horses that have been long shod on this plan of cutting and rasping are not subjects for the more natural system of non-interference with the healthy form of the foot, because the organ has become accustomed to the periodical removal of a large portion of it, and the supply is soon equal to the demand; a sudden alteration, therefore, would be injurious. The error commenced must be continued, or only left off by degrees; otherwise, the excessive growth, not being moderated, would cause an unnatural spreading of the lower surface over the shoe, besides removing the frog from its proper place near the ground, and leaving nothing to guard against contraction of the heels.

The rules that distinguish a good system of shoeing from a bad one are so perfectly simple and easy of application, that one is led to wonder at the difficulty that usually attends the attempt to enforce them. Supposing we commence with the first shoeing, we should be careful to leave the frogs level with the heels; the rasp may be applied to the bottom of the foot sufficiently to get the level surface, and to lower the crust to the line of the frog; the shoe is then applied, hot enough to burn its own channel or seating; this is of course left uncut, and the shoe, after being cooled, is nailed on, as we have said, leaving the inside quarter and heels as free as possible. Generally, seven nails may be used, four of which should be on the outside quarter. The nails are clenched on the wall of the foot, and lightly rasped until level; avoiding, however, any unnecessary removal of horn during the process; a little tar is applied to cover those parts where the rasp has touched, and the process is complete. In the adult horse it will be always necessary to cut out sufficient of the sole to prevent pressure upon it when the crust is rasped down to the frog; but to cut the horn until it yields to the pressure of the thumb is absurd and injurious, removing the support which the sides of the foot require, particularly towards the heels, and causing them to fall inwards if the plan be persisted in. The object in cutting out the sole is entirely to prevent its contact with the iron of the shoe; as soon as this is done, nothing more is necessary; the same system of burning a seating—to which plan there is no real objection, notwithstanding the outcry about it—is proper; and the same care in arranging the nails, and rasping them after clenching, only so much as to render them smooth.

These few rules are alone necessary for the preparation of the foot in all cases where the organ is healthy, and for the proper attachment of the shoe; but something remains to be said about the preparation of the shoe—certainly one half the process. If we separate working animals into heavy and light, we shall find that two sorts of shoes only are necessary; a rough kind, with the nail holes plainly punched by a square pointed instrument; and a more highly finished piece of work, with the holes for the nails punched in a groove that is cut beforehand for the purpose of receiving the nail-heads, which may be driven level with the base of the shoe. The first kind is the common "stamped" shoe, used for draught horses; the second the "fullered" shoe, employed for carriage and saddle horses. Taking for granted the single difference in finish, however, we admit no other distinctions between the two sorts; the same rules must be applied to the final fitting out of the shoe, and the same method of attachment is to be followed.

To the man who comprehends the proper method, it is as easy to proceed in the right way as in the wrong. The fore shoes, which are usually considered the most important, should have a broad under-surface ("cover"), and a good thickness of metal; the heels should invariably be thinner than any other part; this lessening of the sole should be from the upper surface—the part which is attached to the hoof; so that when the shoe is nailed on, a flattened straw may be passed between the iron and the hoof to the distance of an inch or more from the heel forward; the space thus left prevents any fettering of this posterior part. For the purpose of assisting the firm attachment to the hoof, a clip is usually taken out from the toe of the shoe, and fitted into the hoof by cutting, and burning when the hot iron is applied, as the last step in the fitting-out process. The shoe is now ready for fastening on in the way we have before described. In some instances certain alterations are necessary, from peculiarities of locality. In some hilly countries, for instance, the heels of the fore shoes are always turned down to the extent of half an inch, to prevent slipping when descending hills with heavy loads; but these considerations do not affect the shoeing of healthy feet under ordinary circumstances.

The hind shoes do not receive so much attention as the fore ones, for the reason that the hind feet, from their position, are not so liable to the effects of concussion as the fore—disease of those organs being indeed extremely uncommon. The heels of the hind shoe are always made thicker than any other part; this arrangement is found necessary to enable the animal to stop himself with sufficient readiness, by taking advantage of the resistance which the thickened heel offers to the slipping of the foot in a forward direction. The thickening is either obtained by flattening the iron laterally, or by turning down an inch at the end in the form of a knob or "calkin." This latter is the usual plan for heavy draught horses; for lighter animals a combination of the two forms is frequent, the outside heel being turned down, and the inside one flattened; this allows the iron on the inside to be kept with the line of the hoof, and prevents the possibility of cutting the opposite joint during quick movements. The shoes with two calkins are generally clipped at the toe; those with the flat side, or "feather edge," have most commonly side clips. By this arrangement the iron is not required to project from the toe of the foot; the importance of this we shall see shortly, when we speak of the alterations necessary to suit certain peculiarities of conformation, giving rise to such annoying habits as "cutting," "forging," &c., as well as in instances of positive disease, where the animal is still in a condition to work without difficulty, if the part be protected during the time by a properly adjusted shoe.

From our observations on the application of shoes to the horse's feet, we may collect the following rules to guide us in ordinary cases: First, to prepare the foot by levelling the "crust" to the line of the frog, and removing so much of the sole as is necessary to prevent its contact with the iron of the shoe; leaving the frogs generally untouched, save to scrape off any loose pieces of horn. Secondly, to have a shoe of good thickness and breadth of "cover" or "web," with the heels (of the fore shoes) thinned so as to allow the passage of a flattened straw between the iron and the hoof when the nailing is complete. Thirdly, to use as few nails as possible, and to keep the larger number on the outside of the foot; four outside and three inside will be the extreme number required. Fourthly, to rasp the outside of the hoof no more than is unavoidable in smoothing the clenches.

Simple as these rules are in appearance, it will require a man conversant with his subject to direct their proper application, and we can only repeat that we strongly advise owners of horses to study the matter for their own interest's sake, as we are perfectly satisfied that that is the only method of ensuring a proper system of shoeing. So far we have only had to deal with healthy feet, or at least with feet free from any positively serious defect that interfered with the animal's action; but cases of such defects are so numerous, and frequently so entirely connected with shoeing, that no one is in a position to direct or advise on the subject who is not acquainted with these defects and their remedies. Among other instances, we need only refer to the annoying habit of "cutting," caused often by a bad position of the limbs, but not uncommonly due to the awkward use of shoes not properly constructed or fastened.

Cutting is of several kinds; the horse sometimes strikes the opposite fetlock joint of one leg habitually—not with sufficient force to produce much injury, or even lameness at the time, but enough to leave a mark, and by repetition to produce a gradual enlargement; sometimes the blow is only occasional but more violent, causing instant and severe, though temporary lameness, or even bringing the animal suddenly down. Both hind and fore limbs are subject to be struck—we think, equally so; but the danger of falling is much greater when the horse cuts with his fore feet. Sometimes the blow is given immediately under the knee, in which case it is called "speedy cut"—we presume, because the injury is usually inflicted during rapid motion, or because fast trotters are particularly subject to it; this form of cutting is the most dangerous of all, principally from its occurrence while the animal is going quickly; a fall under such circumstances is almost inevitable, and proportionately serious. The "speedy cut" is confined to the fore limbs, and generally to one leg. Before attempting to suggest a remedy for any species of cutting, it will be necessary to ascertain the precise cause. Is the shoe on either foot too far beyond the edge of the hoof? Are the joints unnaturally turned inwards? Is the blow given by the shoe, or by the side of the hoof? This may be usually ascertained by examining the foot, and observing from what part the mud or dust has been brushed.

To cure the first form, where the projecting shoe is the cause, we need only lessen the breadth of the web on that side, and by placing the inside nails (in such cases two will be quite sufficient) quite close to the toe clip, we may keep the iron of the inside quarter quite within the foot. For the kind feet it is necessary to use the toe-clipped shoe with a feather-edge for the inside quarter, nailed only close to the toe; if necessary, a clip may be also taken from the outside of the shoe; but, naturally, the inside must be left quite free, that nothing may interfere with keeping it well inside the line of the crust. Where the blow is inflicted by the hoof, as well as on, instead of by the shoe, then we are occasionally compelled to rasp away a considerable portion of the horn; but this should not be permitted until other plans have failed.

In cases of mal-position of limb, such as slight inward inclination of fetlock-joints, we frequently effect a cure by using shoes with one side much thicker than the other, and arranging them so as to reverse the position of the feet as much as possible; for instance, giving one foot a thick inside quarter-shoe, and the opposite foot a thin one; changing them again if the first experiment should not answer; varying by thin and thick outside quarter; or employing both insides, or both outsides, now thick and now thin, until we ascertain by which system the desired alteration in the position of the joints is produced. All these plans should be patiently tried before we resort to the expedient of rasping away large portions of the hoof—a doubtful remedy at best, and probably only a temporary one.

The habit of "forging" or "clicking" consists in striking the back of the toe of the fore-shoe by the extreme front of the toe of the hind one. Not only is the noise produced unpleasant, but, from the occasional fettering of the fore-foot by its contact with the hind, the animal is likely to be thrown down, or to loosen the fore-shoe by the blow. Weakness from illness frequently causes the habit, and calls for proper constitutional treatment, which by restoring the strength will effect a cure; but in other cases, the peculiarity of the stride is the cause, and we are compelled to arrange the shoes to meet the difficulty. The hind-feet will require the shoes with side-clips and square-toes, which may be kept inside the horn; the posterior part of the toe of the fore-shoe may likewise be rasped away. The hind-shoes are, however, principally concerned; and there is fortunately no difficulty in shortening the toes consideraably without injuring the foot, there being no necessity for nails or clips in this part. In very occasional instances, the animal's conformations are such that no care in shoeing can remove the evil; but generally it may be concluded with perfect safety that the habit is quite curable by a proper attention to the feet.

For application to flat weak hoofs with low heels and a tender sole, no shoe seems so successful as the "bar-shoe." This is in reality a common shoe with a piece of iron crossing from one heel to the other, giving thereby a more extensive ground surface, allowing more space for placing the nail-holes, and consequently a better chance of fixing the shoe by nailing in those parts where the horn is best able to bear the introduction of the fastenings, the increased surface for the support of the foot permitting with safety the removal of any pressure from a particular part in cases of corns, or injury to the sole. With the addition, if necessary, of a leather covering between the shoe and the hoof, the bar-shoe furnishes an invaluable means of protecting the foot in cases of such chronic diseases as "canker" and "quittor," where treatment is required for a long time, and the patient expected to perform his ordinary work during the cure.

To every one who cares for his horse's soundness, the treatment of the feet in the stable is a matter of grave importance, neglect in this respect entirely negativing the advantages of good shoeing. We have several times insisted on loose-boxes in preference to stalls, as more favourable to the change of position necessary to prevent stagnation of the circulation in parts prone to it from their position; we have also objected to the litter being always left for the animal to stand on, or rather in. To these points we have only to add the necessity of keeping the feet cool and moist by the daily employment of wet wrappers round the hoofs; pieces of old horse-rug answer perfectly well for this purpose, doubled three or four times, and tied loosely on. Stopping the bottoms of the feet we do not lay much stress upon; if the sole be never cut thin, and the litter be thrown up during the day, we should not perceive much necessity for stopping. However, where material can be easily obtained, no harm can possibly follow from the plugging of the feet by a mixture of cow-dung and clay, taking care that the compound is always moist. The use of some protective to the outside of the hoof is very desirable, and common tar should always form the base of any compound employed for the purpose. A very good mixture is made of tar, four parts; soft soap and bees-wax, of each one part; melted together, and coloured to suit the hoofs.

In every well-regulated stable the feet are periodically examined to ascertain that the shoes are all fast and in proper place, especially before a journey be undertaken. Horses in moderate work will wear shoes for six weeks, and probably require fastening, or removing and re-adjusting, once during the time. When the work is exclusively on soft ground the shoes last much longer, but will always require removal at the end of a month or six weeks, supposing they retain their proper position so long. Horses doing fly or brougham work on the London stone during the "season" will frequently cut out their fore-shoes in ten days or a fortnight, and even require them fastened once or twice during this short time. Such frequent interference with the hoofs must naturally be injurious, but happily the majority of horses are not in a position to render such treatment necessary.—Jackson's Oxford Journal.

THE MANAGEMENT OF LIGHT LAND.

Mr. Robert Henderson, of East Ellerington, Haydon Bridge, has recently read a paper on the management of light land, before the members of the Hexham Farmers' Club. He spoke to the following effect:

Mr. Chairman and Gentlemen—The subject which I have to bring before your notice to-day, is "The Management of Light Land," a subject of very great importance, because light land is capable of being cultivated so as to raise a greater variety of farm produce than some kinds of land, and as the prosperity and comfort of many farmers and families depend on the manner in which it is conducted open Although this subject may leave a wide field for much to be said, it leaves me as much at a loss to adopt a system to be generally followed under such a multiplicity of complex circumstances as are consequent upon farm-holdings and farm operations, such as locality, length of lease, extent of capital, and extent of the farm, which is not of the least importance; under these, and many other circumstances, it would be impossible to fix a system suitable on all occasions, as it sometimes happens that proprietors of land are so situated as not to be willing to give their tenants due encouragement to improve their farms, or where landlord and tenant are compelled to come to an unsatisfactory agreement, which leads the tenant to adopt a system both contrary to the condition of the land and his better judgment, which not unfrequently causes them to counteract, instead of assist each other; and yet we see tenants farm and succeed very differently, even under the same owner and with the same conditions. But where a landlord and tenant make a mutual agreement for a farm, for a certain term of years, without a long chapter of barbarous and stringent clauses in it, then it becomes the desire and the duty of every enterprising farmer to raise as much produce from his land as he possibly can, and at the least possible expense to keep his land in an improving condition. And I would recommend that produce be more in the shape of beef, mutton, and wool, and less of corn, as is too frequently the case in a hill-and-dale country like this, and especially on second and third class land; we cannot bear in mind too much, the bad effect which under-stocking and over-cropping have had on the greater part of the land in this neighbourhood.

If we would look at the present price of certain kinds of farm produce—for instance, butter and wool, the average price of the latter article having been, for 50 years preceding 1856, 13¼d., and has since been more—and calculate the difference of the cost that these articles, as well as mutton, can be raised at on inferior soils, and compare it with that of corn, our appetites would diminish for grain crops. Light soils can be ranged in three different classes—first, land of the best quality is often situated in the vales, in smaller quantities together, and is capable of producing corn to greater advantage, while farms of that kind are less adapted for sheep-keeping. But even on that land I would not recommend the four-course system, both on account of its being more severe upon the land, and requiring greater expense, both in the shape of procuring manure, and keeping it free from weeds. When land is ploughed out, after having lain one year only in grass, and perhaps been mown, and sometimes twice, should it not be clean, the weeds increase with the following crop, without the land being able to produce a quantity sufficient to check their growth much, both for want of rest and from exhaustion.

On land of the second and third quality, if the farm be a large one, so as to render it capable of being made a useful grazing farm, I will not attempt to fix any system, but would recommend the five in preference to the four-course; as light land, which does not exceed one pound per acre rentable value, can never be cultivated to grow corn to advantage, and compete with the good corn-growing districts. It is therefore necessary, on such soils, to have recourse, in a measure, to some other mode; and there is none more likely to repay the enterprise of the farmer, than to endeavour to raise as much green food for cattle and sheep as he can, with as little draught and manual labour as possible, as the import trade from foreign countries is never likely to hurt the English grazier in our day, if ever. There is a system, gentlemen, that has often engaged my mind, which although it may appear to you to be much out of the common way, yet I think on suitable situations would be found to answer, if properly carried into effect: I can best describe it to you by supposing a farm of 450 acres, the whole or major part of which was capable of producing turnips, 150 acres to lie in permanent grass, 20 of which should be mown every year for hay, and the remainder in pasture, leaving 300 acres under the plough, to be managed in a six-course shift, viz., 50 acres of oats, upon lea; 50 acres of turnips, after oats; 50 acres rape and seeds, after turnips; and the remaining 150 acres in first, second, and third years' grass, of 50 acres each. This mode of farming would at all events secure a fertilizing tendency on the land, a satisfaction to the landlord, and an abundant supply of food and clothing for the consumer, as well as a remunerative profit to the tenant, provided his lease was long enough, as he would always have his land clean and in good condition; and, should corn ever much outreach other farm produce in price, it would be in a fit condition to be ploughed out and cropped in the above described way. Three hundred acres of tillage-land could be well managed with two draughts and a half. The only item of expense that would approach near to that ordinary mode of farming would be the seedsman's bill, which would be heavy; and the only great difference in the kinds of stock kept ought to be, not to keep many ewes, nor to feed many cattle in the folds in winter, which is not only wrong, but often unprofitable in the end, under any system on thin land; but to be content to make as many young cattle fit for the spring markets as you can, with 50 acres of oat-straw, which would be in quantity equal to 100 acres under some systems of management; and 50 acres of turnips, one-half taken off, and leaving the leaves upon the ground, along with the other half to be eaten on the ground by sheep. It would not require a large farm, conducted in this manner, to produce 1000 fleeces of good wool in one year, provided the sheep were mostly hoggets, and properly conducted; as the whole of the farm would be producing, instead of the one half lying in a state of poverty and nearly useless, while the other half is used to abuse with growing corn, and therefore becomes poor also.

Soils most difficult to manage are those of an open clay-sandy nature, such as rabbits can browse in; as its appetite for manure and the expense of freeing it from weeds, which it is difficult to do, are such as to swallow up the price of the crops so much, that they often do not repay for cultivating, and especially when kept in the four-course system. I would rather recommend that it should be cropped alternately with corn and turnips, which ought to be eaten off by sheep, and the corn to exchange in turn between oats and maslin, till the land be perfectly clean, and in a fit condition to be laid down, either with or without a corn crop, to lie from three to seven years, or so long as might be deemed advantageous; if lime was required, it should be applied moderately, in the month of April, previous to sowing with turnips. It might be beneficial to sow fourths or fifths of red clover each time it was sown with corn, for food for lambs in October, so as to keep sheep going over it as much as possible. It ought to be well ploughed, and no oftener than would suffice to keep it clean, and not to trust too much to the uncertainty of the grubber to effect that purpose. Grubbers were introduced into this neighbourhood to assist in cleansing the land, and it will be well if they have not a contrary effect. Light land in this country, when in turn to be followed, is generally sown with turnips, which ought not only to be well manured, but well managed in every respect, as the turnip crop is the most important one of the whole course. After my land has been made ready for the drills to be raised and the dung to be put in, which is done in the way best known by raising and splitting, the whole is manured with half-dung and half artificial manures, or at least the dung that has been made, to be divided over the land, to be sown according to its condition; the remainder being guano, and prepared on half-inch bones mixed, and sown with Garrett's manure-drill. I never use any other. In covering the dung, care ought to be taken to divide the ridges, so as to leave it in the middle of the one to be formed. I never use oval rollers, neither do I sow the artificial manure and turnip seed on the same day the drills are raised, if it be convenient to do otherwise, and especially if the weather be dry.

Another description of second-class land is that which has been down to grass for many years; when ploughed out and sown with oats, it should only have one crop taken before fallowing, however tough and cloddy it may be, but ought to be sown with turnips, and to be eaten off by sheep, which process would make it fit for further and better cultivation.

Land of this description ought to have a liberal supply of lime put on in the month of April, previous to sowing the second crop of turnips, instead of being put upon the oat stubble in the autumn. When lime is thus applied, it will either be ploughed down too deep, or the land will be too lightly ploughed, which ought not to be the case, as the autumn ploughing, before fallowing, is of great importance, it therefore ought to be done deep and well; moreover, when lime is applied in the autumn or winter months, it is very apt to form into clods, and can never again be so equally divided into small parts, therefore a much larger quantity is required to produce the same immediate effect; when applied in a powdery and caustic state, a smaller quantity may suffice to cover the whole surface of the ground, and come in contact with the more minute particles of the soil.

As there are only certain and few conditions in which land can be made to receive lime to be benefited by its application, it is therefore necessary to know something about the condition of our land before applying it, because where land has been injudiciously cropped or insufficiently manured, a heavy dose of lime will then certainly add to its infertility.

There is another class of land which might be improved to become much more useful than in its present condition, viz., unreclaimed. In breaking up unimproved land, after draining, paring and burning are often resorted to—a practice which I would not recommend, except that which is covered with heath, a substance which ought never to be ploughed down. I improved a field of very poor, sandy land, covered over with short, unhealthy heath: it was pared and burned in the summer, previous to its being ploughed and sown with oats, which grew till the middle of July, and then died off. It was again ploughed a little deeper, in a contrary direction, during the autumn following, which cut it into squares. It was then wrought, but not very much, during the following spring, for turnips, which were manured with a very slight dunging, 2 cwt. of guano and ¾ of a cwt. of prepared bones per acre, sown with the drill; the turnips were a regular crop, but not large, and were fed off with sheep in the month of October. The land was then ploughed up into large casts; when, in April, it got seven fothers of lime per acre, and was again sown with turnips in the first week of June, which were a good crop, and consumed by sheep, as before, in October and November. The land was then ploughed, and sown away to permanent pasture, without a corn crop; in the middle of April the grass-seeds were mixed with a little rape, which made a very luxuriant pasture. The annual rent of this field was a mere acknowledgment, until the per-centage for draining was added; and yet it depastured and fattened more sheep the first year it was in grass than a crop of turnips would have done, and all land so laid away ought and will. As the condition of that field improved, I increased the doses of manure accordingly; and I am quite convinced that had the lime been applied sooner than it was, it would have been nearly wasted, as the land contained neither organic nor putrescent matter, and very little of anything else calculated to promote the growth of plants, and thus a great deal of labour and capital would have been wasted, and my purpose not effected.

It may be thought that to raise so many green crops without getting corn to take to the market would not repay the expense; but we know what marketable corn can be got from land worth from 1s. to 7s. or 8s. per acre. Although I grew no corn on the field above mentioned, yet it produced crops which left it in the best possible condition to lie to pasture; and, had it not been for the encouragement which I received from my landlord, that portion of the farm might have been still unimproved, as my lease was nearly expired at the time it was commenced with.

In no farming operations will half-measures be found to succeed; and when a man has such an object in view as laying down land to produce crops without further cultivation for a series of years, he should calculate the loss that he will sustain if he does not effect it in the most complete manner. Another process of improving a pasture, covered with coarse rough foggage, which had never been ploughed before, was practised on a farm not many miles distant from this place. It was drained two or three years previous to its being ploughed, and was sown with oats; the next year it was ploughed and again sown; and the third year it was well autumn-ploughed, and in the month of March or April it got a heavy dose of lime, hot from the kiln, which was spread and well harrowed in, without having been either stirred or cross-ploughed. The drills were then formed of the loose soil upon the top, when the turnips were sown, along with artificial manure sown with the drill, and were a most abundant crop. They were partly taken off, and the remainder consumed upon the land by sheep, when it was ploughed the ordinary depth, and sown with corn and permanent grass-seeds, thus growing four abundant crops with four ploughings, and it has been a good pasture ever since.

One author, writing on agriculture, says that a farmer is not perfect in his business who cannot grow to advantage three green crops for one of corn. The last-mentioned method was exactly the very opposite, making the difference very great.

As it is each man's duty to consult his own interest under the circumstances in which he may be placed, it is probably from the same cause which makes the term so widely different between cropping and farming.

Notwithstanding these remarks, the value of all systems of farming must be determined by their effect on an average for a certain number of years, by strict observation and long practice.

[At the conclusion of the reading of the paper, a discussion arose amongst the members relative to the merits of the system expounded by Mr. Henderson, and the Chairman expressed, on behalf of the members of the club, the obligation they were under to Mr. Henderson for his valuable paper.]

THE TRIALS OF IMPLEMENTS AT CARDIFF.

We must premise that this is necessarily imperfect; but we have done our best to acquire correct information, as also to use our judgment in the best manner of which we are capable. We will begin with the trials in the yard as conducted by the Engineering Judges, Messrs. Eaton and Gooch, whose first business appeared to be the trial of the testing brake or power dynamometer.

Steam Engines.—Mr. Butlin, of Northampton had the honour of opening the trials by submitting his new and complete engine, designed expressly for strength, simplicity, and economy. It is of six-horse power, and possesses a boiler of great capacity and much heating surface, and a steam dome to control dirty water. Messrs. Brown and May's engine followed. It is of eight-horse power, and also possesses great simplicity, the working parts being outside, and easily accessible. The cylinder is encased; the case also is filled with steam, and thus keeping a high temperature, tends to save fuel. This engine received the prize of £10. Mr. W. C. Cambridge next submitted his eight-horse engine. The cylinder of this is also surrounded by steam, and the pump protected by the smoke-box—a useful contrivance against frosty weather. The prize of £5 was awarded to it. We could wish our space would permit us to go more into detail relative to these interesting trials, and therefore we can only here say that all the trials were marked by great care and correct judgment.

The Trials of Thrashing and other Machines.—These were conducted (with the assistance of the Engineering Judges) by Messrs. Caldwell and Wallis, to whose joint care and nicely-balanced judgment the public are much indebted. The trial of thrashing machines were conducted, as we have already said, upon the principles laid down by Mr. John Algernon Clarke in a letter lately addressed to the Council of the Royal Agricultural Society, viz., a system of points of merit. The brakes or dynamometers used for testing both the steam engines and thrashing machines were invented by Mr. W. Froude, of Darlington, Totnes, and, we believe, performed the duty required admirably. The well-known thrashing machine manufactured by Messrs. E. and T. Humphries, of Pershore, was first tried. It is fitted with a thin divided trough; and also a very effective little machine is attached, to destroy smuts and take off the capes or whiteheads; it consists of a revolving brush rubbing against a circle of ribbed iron, which not only takes off the white coats, but separates other refuse before going into the second blower, from whence it is blown away. This machine again received the first prize of £10. Price £93. This also received the £5 prize as the best finishing machine. Messrs. Brown and May's machine was next tried. These makers have endeavoured to separate more correctly the straw, cavings, chaff, and corn, in every stage, into their separate and respective places, and it has all the combinations for perfecting the sample for market and putting it into sacks. Price £93. Messrs. Cambridge's machine was also tried. It is 4 feet 6 inches wide, and is adapted for both bolting and thrashing, and, being fitted with his patent dressing apparatus, finishes the corn for market. This proved extremely well on trial. Price £100. Then came the smaller machines of three or three-and-a-half horse-power, the prize for which was awarded to Mr. H. Beare, of Leverton, Devon. It is a highly useful and complete machine, and fitted with excellent apparatus for preparing the corn for final dressing. It can be worked by steam-power. Price £32, and horse-gear additional £15, or complete £47. The judges do not speak favourably of this class of implements as combined machines. But we must pass on to notice a few smaller machines and gearing. Mr. Boby's screen was practically of great service to the judges, as they submitted the perfected corn to its severe scrutiny, through which, however, it passed imperfectly though creditably—the finishing thrashing machines leaving 5 lbs. of light corn from 1½ cwt., and the hand-dressing machines 4½ lbs. from 1½ cwt. of the perfected samples. The trial of chaff-cutters is always a matter of considerable interest, and this year it has lost none of its power, owing to our old friend Cornes having sustained a defeat; and although we bow almost implicitly to the decision of the judges, aided by the testing-brake and steam-power, we wish the public to bear in mind that when machines are put to such tests, judges are almost compelled to abide by them. We congratulate Mr. Carson on his well-earned victory. It was obtained "after much pains-taking and the working of many figures from the dynamometer." He has brought out a highly-useful machine, which, after going through many *commendations*, has at length obtained the *prize*, having beaten Mr. Cornes by 7 lbs. in the trial. Price £15—Mr. Cornes, of course, receiving the high commendation. We noticed a lengthened trial of Rea and Burns' bone-cutting and rasping mill, by Messrs. Lister and Scott, but with no very satisfactory result. It is, however, a machine of considerable value, but from accidental breakage it failed to prove well. The pulse-bruisers, cake-breakers, root pulpers, turnip-cutters, churns, &c., &c., all had to undergo close inspection, and some were tested; but we cannot, without encroaching upon too much of our space, refer further to them, except to say that every care was taken by these gentlemen, and their decisions were marked by sound judgment and experience.

The Field Trials.—These trials always give a character to the meeting, be held where it may, and the Cardiff one will long stand pre-eminent in this respect, from the number and variety of the trials instituted, including all the chief points of interest sought to be solved by modern agriculturists. We will endeavour to go through them in succession, as the trials took place. They were conducted by Messrs. Read and Clarke, greatly aided by the field steward, Mr. J. E. Knollys, on land occupied by Mr. Richard Thomas, called the Crwys Farm, about one and a-half miles from the show-yard. Mr. Thomas did all in his power to facilitate the progress of the judges, as did also the subordinates engaged, so that no confusion or the slightest hindrance occurred. The field selected for the trial of the cultivators, drags, &c., &c., was in the best possible state for that purpose, having been long ploughed, and upon it was a great abundance of strong well-grown twitch to be torn up and worked out—a severe test for broadshares, parers, and the like, against scarifiers and drags, as the result proved. Only three implements were duly entered for trial in Class 5—Bentall's, Carson's, and Coleman's, and they were first put to the work with their usual shares, or as for broadsharing. Bentall's took 4 ft. 6 in. width, Carson's 5 ft. 2 in., Coleman's 5 ft., each 6 in. depth. Carson's was with difficulty kept clean, and was hard to take up; Bentall's worked evenly and quietly, with occasional clogging, and left the work but slightly broken, and was scarcely taken out of the ground at all; Coleman's worked well, and left the work more ready for the drag-harrow—the side and lifting movement excellent. This was, however, not proper work in this state for either of the implements, therefore their shares were taken off, and points substituted. In this trial Carson had 7 points, 3½ in. each; Bentall had 5 points, took 4 ft., 6 in.; Coleman 7 points 4 in. each, took 4 ft. 4 in. The work of the latter was best adapted for subsequent harrowing. The dynamometer was applied at equal depths; the variation was not great, Bentall's having a slight advantage, the other two about equal; but in this instance and circumstance of the work to be done, Coleman's cultivator certainly made the best work, and consequently took favour with the judges, Bentall receiving the high commendation, Carson the commendation. They were subsequently put through another phase of their peculiar adaptations as parers, but the judges did not alter their decision. Mr. Comins brought forward a drag, or grubber, in competition, but made a most laughable exploit of it. These respective cultivators—or rather, modifications of them—were brought forward in Class 6 ("Narrow Cultivators, &c."). The result confirmed the prize in both cases to Coleman. Carson, with 5 shares, took 3 ft. 5 in.; Bentall, with 3 shares, took 3 ft. 3 in.; Coleman, with 5 shares, 3 ft. 10 in. Bentall and Coleman were equal, Carson a little heavier draught. Bentall's received the commendation.

Single or Double Drags.—Messrs. Fry, Eddy, Comins, Coleman, Lyne, Wright, and Bentall were competitors. The trial was a good test of merit; but they were all large harrows, not drags, and partook of Howard's well-known form. Fry's took 7 ft. with 15 teeth in each harrow; Eddy, 7 ft. 6 in. with 20 teeth in each harrow. These worked well; but the tines, or teeth, appeared a little too much in line. They were commended. Comins took 8 ft. 9 in., having three harrows, each 15 teeth, the last row a little bent, for more effective working. Coleman took 10 ft. 6 in. with his well-known expanding harrows, but, as they are more adapted for stetch-work, they did not show well here. Lyne (an amateur mechanic) took 6 ft. 9 in. with 31 teeth, set in a peculiar way in seven serpentine bars, which are independent of each other, but connected in front, and are drawn from a rod which runs through loops in each bar, which are kept separate at proper distance by ferrules; and at the other end they are connected by short, jointed rods, so as to permit their rising and falling at pleasure, somewhat after the old gingle-harrow fashion. In the rough work appointed them they proved exceedingly well, and could not be clogged. The Judges awarded them a certificate of merit. J. and R. Wright took 7 ft. 6 in. Each of the harrows had 20 teeth. The teeth did not track quite to our satisfaction; but they are strong and cheap drag-harrows, and very properly received the commendation. Bentall took 8 ft. with 20 teeth in each of his double-angle iron drag-harrows. The fastenings and couplings are very good. These harrows made the best work, and showed evidence of the greatest utility, with permanence and cheapness. They were awarded the prize.

In the *General-purpose Harrow* class the same parties competed. Fry's are a set of three harrows, of 24 teeth each, taking 9 ft. 6 in. The teeth are squared into the bottom-bar, and then fastened by screw. They did exceedingly well, and were justly awarded the prize. Bentall's is a set of four harrows with 15 teeth each, and are as well made and well fastened as usual. They received a commendation. Eddy's is a set of three harrows, each 24 teeth, taking 9 ft. We thought them too light for the class. Lyne showed two sets of three harrows—or rather, 13 bars each set, of 5 teeth each, fastened as named above. One set has a straight strengthening bar, which adds greatly to its stability. These worked admirably, and received a special prize for the originality and usefulness of the invention. J. and R. Wright's are a set of three 20-teethed harrows, taking 10 ft., with square bars, and a peculiar setting of the teeth for fine or coarse work. Coleman's is a set of his expanding harrows, well manufactured, and highly useful in their more especial departments. Both sets worked well.

Sets of Seed Harrows.—The same Firms were once more competitors. The style and character of their respective implements were kept up on a reduced scale, some differing from the others in the extent of the reduction. Bentall's were too light, but worked to perfection, and thus commanded a commendation. Fry's were likewise too light and small; Coleman's his light expanding; Eddy's rather longer, of same form; Comins, a good country-made set, of good farm service, and did their work well. Highly commended. Lynes' continues his shape, and his size is more proportionate, the weights, (for all his harrows had weights; hanging on the bar behind,) were taken off to try their steadiness, which proved them unnecessary. Wright's were same form, but somewhat stronger than the other sets, with good length of teeth, and good fastenings. He was awarded the prize.

Chain Harrows.—This implement is becoming every day more popular. The judges took great pains to test the value in work of two inventions of this character, Cambridge exhibited that of Cartwright's invention, with plain square links, and his own expanding apparatus. Lemon exhibited a set of his own invention, having the same square links, with the alternate ones spiked at the corners; this appeared to promise both durability and effective working. The expanding apparatus is not so perfect as that of Cambridge. These were tried immediately after the harrowings on Saturday, but the couch being green and soddy, neither would work well, but the spiked chains clogged most. They were again tried on the following Tuesday, upon dry twitch or couch, both in regular draught, at about 2½ miles per hour, and also with horses on full trot. In both cases Cambridge's harrow had the advantage. Lemon's harrow worked well, but it gripped more, and retained it too long. The points, too, appeared to hinder the clearing. That of Cambridge stuck closer to the surface, collected much under it, and discharged it with greater regularity. The prize was at length awarded to this, and a certificate of merit to the other.

Clod-crushers.—In this class Messrs. Gliddon, Fry, Carson, Cambridge, Eddy, and Bird were competitors. Gliddon's is a useful implement, of small size (6 feet by 20 inches); Fry's is Paterson's (6 feet 2 inches by 24 inches). We need scarcely say that it did well, and was commended. Carson's (6 feet 6 inches by 24 inch discs), is a combination, or has alternate discs of the Cambridge and Paterson type, his own invention, the latter being a nibbed rim, outside the smaller ones, kept in its place and made to revolve by these smaller ones. It does exceedingly well, and was commended. Cambridge has improved his greatly, the alternate discs being serrated ones; it is 6 feet 6 inches by 26 inches; weight, 22 cwt.; crushes admirably.—The prize. Eddey's crusher has a good scraper and serrated discs: it is short, 5 feet 6 inches by 24 inch discs. It received a commendation. We observed the judges subsequently in the yard, attaching the dynamometer to several clod-crushers; contrary to their expectation, that unnerring, "tester" proved that those crushers with discs of different diameters, working freely, possessed a slight advantage in draught over those of equal diameter. Two of these clod-crushers, of equal diameter, the larger rims excepted, were taken to the field, but the tremendous shower which came on prevented an accurate result being arrived at.

Ploughs. — The trial of common-purpose ploughs is always a matter of the greatest interest. Every requisite arrangement was made for the purpose of insuring a fair and correct trial, so that the advocates of triennial trials should not have a just cause of complaint. Great pains were taken by the judges in order to arrive at a satisfactory conclusion. The competing ploughs were severally exhibited by Messrs. Fry, Carson, Eddy, Comins, Lemon, Wright, Hole, and Lewis. The land being marked out, and all being strangers to the soil, it was arranged that each plough should take its place as entered in the judges' books; consequently, Messrs. Fry took No. 1, with a plough invented by Robert Cosens, having a 4 feet 9 inches mould-turner, and a regulating wheel to run on the furrow-sole. We thought in doing its severe work it ran too much on its points, that the mould-turner caused too much pressure on the furrow by throwing it out too wide and over, and the regulating wheel to be of but little service. Carson took No. 2, with a plough, his own invention, of good form and construction. The mould-turner rather short (3 feet 4 inches). The work was fairly laid, but scarcely close enough, and it with difficulty made an even furrow-sole. It proved well with the dynamometer, and the judges awarded a commendation. Eddy took No. 3, with a rather attractive plough, possessing many of the points of our best makers; but, in looking closely into its details, we discovered imperfections which did, as they ever will do, show themselves in work. The plough ran well on its furrow-sole, but threw the furrow too wide and broke it in deep ploughing. The mould-turner 3 ft. 8 in. We observed a judge pointing out the defects in form of some parts of this plough, which he acknowledged, and intends to obviate another year. Commended.—Comins took No. 4 with a plough of his own invention. He was also his own ploughman. He succeeded much as a man does when in an intricate lawsuit he persists in acting as his own "lawyer." He might have found a better ploughman.—Lemon took No. 5 with Ball's plough and best ploughman. The work was well laid; the furrow too wide and too much pressed over by mould-turner, which is 4 ft. 6 in. long, run well on furrow sole. Draught light. This plough was highly commended.—J. and R. Wright took No. 6 with a well-formed plough; their own invention. The mould-turner nearly in true form, and 3 ft. 10 in. long, and the share nicely-adjusted to cause a uniform lift without breaking the furrow. The furrow was cut clean and right, and turned-over at the correct angle. On proof it was found to be of light draught. The Prize.—Hole took No. 7 with a plough his invention, having a mould-turner of the old turnwrest or convex principle. The work was laid flat and much broken, nor does the plough havel well on the furrow sole. Draught not excessive.—Lewis took the last work with a plough of his own invention. The work was well done, but we thought the plough required improvement in the first lift and inclination of mould-turner. Commended as a good country plough.

Subsoil Ploughs.—The competitors in this class were Messrs. Bentall, Eddy, Comins, and Wright. Bentall brought forward his modification of his broadshare adapted as a subsoiler. Nothing can work more steadily, or do more effective service in such a simple and inexpensive manner. The Prize.—Eddy's subsoiler is an improvement of the Marquis of Tweeddale's invention. It worked well after the two pulverizing prongs were taken off, and received a commendation. — Comins brought forward his well-known three-coultered subsoiler with wood beam. The coulter broke in working.—J. and R. Wright's subsoiler is an effective implement, but difficult to manage in rough work.

Turn-wrest Ploughs. — Eddy's is a well-made and nicely-adapted implement for the purpose. The mould-turner well adjusted for making good work. The Prize.—Wright's did well, and was commended.

Horse-hoes for Ridge or Flat.—Messrs. Fry, Carson, Comins, Wright, Hole, Bentall, and Lewis again competed. Carson's worked truly and well, and his coulters are so arranged through the beam as to work without injury to the standing crop; the hind coulters showed symptoms of clogging, but did not. The prize.—Comins showed a good form of curved cutters. Wright's frame would do serious injury to standing crops; his curved cutters were in excellent form and inclination. Hole's has a movable expanding frame, three chisel-pointed coulters; two shares did very well. Bentall's is another modification of his scarifier; it was commended for its many useful adaptations. Lewis has a long bar in front and wheel at each end, sadly in the way when mangels are high. Fry has one V shaped share, and two cutters of share shape. All these hoes had various modifications for ridge culture, and those of Fry, Carson, and Comins for steep hill sides, Carson received the prize.

Turnip-thinners.—Eaton tried two very useful implements for this purpose, for both ridge and flat work, which made excellent work. The two-rowed thinner received the prize; it sets at 9 in. and 12 in. by altering the gearing.

General Manure Distributors.—Reeves and Brown and May competitors. We were surprised at the facility in working of Reeves's distributor, depositing from about two bushels per acre to *ad libitum* with great equanimity. Brown and May's possesses great capacity; it is also adapted to spreading long dung, for which purpose it is attached to the dung-cart; the manure is thrown into it, and regularly shaken by turning forks around the drill barrel. We did not highly appreciate the invention.—A special prize was awarded to Reeves's liquid-drop drill; it is a combination of Chandler's liquid-manure drill, with Chambers's dropping apparatus, and in working fully answered our expectation.

A special prize was also awarded to Woofe's paring plough. It is arranged for cutting the turf pared into lengths of about two feet each, for more readily collecting for drying and burning. This is done by a little revolving knife as the plough proceeds. It worked well, and received marks of public approval.

The corn-drills were not tried—the only competitors Bird with Smith's old Suffolk drill, and Wright; the former received the prize.

Haymaking Machines.—In this class only one in competition, that of Messrs. Smith and Ashby, which deservedly received the prize.

Reaping Machines.—The only competitors in this department were Messrs. Burgess and Key, and R. Mathers. H. Bird was the exhibitor of Burgess and Key's reaper. We took especial notice of the reaper shown by Mr. Mathers in the yard, and we there satisfied ourselves that it must work imperfectly, if it could work at all. The result in the field justified our apprehensions: it frequently choked, from imperfect cutting, and was ultimately withdrawn. That shown by Burgess and Key, and worked under the businesslike superintendence of Mr. Rix, an extensive Hertfordshire farmer, did admirably, cutting the green rye with great precision, and in a clear, clean, and workmanlike manner. Indeed, so evenly as to defy the powers of any experienced mower, and leaving it in a more continuous and light state for weathery influences. The trial of this reaper may be stated as truly satisfactory, as evinced by the plaudits of the spectators and the great interest taken in witnessing its operations.

Steam Power to the cultivation of Land.—The interest excited in the minds of the more enlightened agriculturists and mechanics of this part of the kingdom to witness this most important trial of steam-cultivating implements is intense, and it is shared in very encouragingly by the general public; so that steam-cultivation bids fair, not only to keep up, but increase in popularity. Certainly the satisfactory evidences of its efficiency as shown in these well-conducted trials will not diminish that interest, particularly when such clever and extraordinary specimens of inventive genius are brought together in peaceful rivalry to effect such a noble and beneficial object; for be it remembered that we are novices yet as to its ultimate value. Talk not of it merely as "a substitute for the plough or the spade"; it will attain a far higher power and purpose—even to revolutionizing the whole system of agriculture; giving us deep cultivation such as horses cannot accomplish, uninterrupted tillage when required, continuous cropping upon chemical principles, &c., &c.—things we can't go into now. The trials took place on the Cryws farm, on a field of grass-seeds well eaten off. The implements in work were those of Mr. Fowler, Mr. Smith, Mr. Cambridge, and Mr. Coleman, and deeply interesting were the various operations. Mr. Fowler brought his four-furrowed plough upon the one-way or turnwrest principle, worked by his new and admirable windlass, by which one-third of the length of wire rope is saved, and in a most simple manner—that is, by winding it in grooves around two wheels or drums 4 ft. in diameter, and in such a way that as it is wound up on the one it is paid out by the other, without requiring a man to guide the coils. This is the main improvement since we last saw it. There are others of minor character, for enabling the ploughing of irregular fields, saving of labour, &c., &c., &c. It may be superfluous to say so, but we do not wish to see better work done; and it was accomplished in a very quick and expeditious way. The ploughing was deep, upon an even furrow sole, the work well laid, and fairly cut—not perhaps with that nicety and precision which might be effected by a first-rate Howard, all sharp and well set in the hands of a champion prize-man—but truly good workmanship, fit for the harrow or other purposes of culture. The engine and windlass, as usual constituting one machine, was at one end of the field, the patent anchorage at the other, and the work went on most satisfactorily without let or hindrance, so much so that the advocates of "steam-ploughing" at least, again confessed the all-important question solved — the general adoption of it merely a work of time and expedience.

Mr. Smith, of Woolston, brought his complete set of appliances for fulfilling or accomplishing every purpose of culture by steam. His engine and windlass are stationed at a given point, and wire ropes are laid out for completion of the work: his anchorages are moveable anchors, with reel attached, around which the ropes pass. These are moved, as the work proceeds, by the workmen stationed for that purpose. The implements consisted of three, five, and seven-tined cultivators or grubbers, and his celebrated double mould-board plough; the whole (engine and windlass excepted) manufactured by the Messrs. Howard of Bedford, and got up, as we have before said, in excellent style. The turning-bow, about which we have heard so much, is in reality nothing more than a plough-rake of peculiar form—indeed an elongated bow with two projecting points, so set inside the bow as to catch the loops of the wire rope, and by which it is drawn round at the ends. Nothing can be more simple or effective. Mr. Smith commenced with one of his smaller cultivators, and although the work was severe, the soil was turned up in excellent state for the harrow at seven inches depth, with comparative ease and extraordinary facility and quickness, the pace travelled averaging about 3½ miles per hour; he could soon have finished the whole field, had he been permitted. After a while, his double mould-board or trenching-plough was tried, and performed admirably, even to the inversion of the soil; or at least such would have been the case, had he been permitted to split the ridges first made. As it was, the grass seeds were all so effectually covered, that general decay of the grass and roots must take place, and so fit the surface for any future operations in culture. But we have still other most powerful aids. Mr. Cambridge attracted much favourable notice by bringing into the field his powerful locomotive with Boydell's endless railway-pattens. This engine, admirably driven as a "*great iron horse,*" drew, first, three of Eddy's ploughs, each held by a competent workman, and made excellent work when fairly arranged and the public permitted the men a view. Subsequently, Mr. Coleman's very powerful eight-coultered cultivator, adapted for steam-power, was attached to it; with this it stalked along, to the astonishment of every visitor, making a powerful impression on all present by the manner in which it broke up the soil at great depth—showing in another phase the great power of steam as applied to cultivation.

This must conclude our report of the Cardiff Meeting—a meeting which, we trust, will prove invaluable to the agriculturists of the surrounding districts, as bringing under their immediate notice the modern improvements in agricultural science, in accordance with the design and fundamental rules and migratory character of the Bath and West of England Society. We should have been more content—and we think a more complete development of this science would have resulted—had more of our old-established firms contended for the premiums. If these firms can produce better implements, the district ought to know it, and be permitted to see them tested. We think it wrong that the public should not have the opportunity. It may be inconvenient for implement makers to manufacture *trial implements* yearly, but there are grave objections to maintain none but triennial trials; and if societies cannot see their way clearly to institute them, we think manufacturerers will find it their interest to fall in with the regulations adopted by such societies for their own advancement.

A WEST COUNTRY FARMER AT THE CARDIFF MEETING.

Sir,—In company with a few of my neighbours I went to see the Cardiff Meeting of the Bath and West of England Agricultural Society, and as a very large proportion of them were absent, it strikes me a few comments which I made when there may be acceptable to them through the columns of your paper. I say a few of my neighbours went with me; for the fact is, the passage across the Bristol Channel was not relished by others, who are not only landsmen, but men of the land. To most of us it appeared as if the Society had gone from their own supporters and subscribers, amongst others who have hitherto done little for the Society. Time will prove how far the advances thus made by the Council will be responded to by the people of Wales.

Well, Sir, having got safely over the water—not mentioning casualties by the way—we went to work to see and make some notes of what appeared most striking to us. We were glad to find that—thanks to good management—the yards were open to the public earlier than usual, and that all seemed well and satisfactorily arranged for their convenience. The implements first attracted our notice; and in Stand No. 1 we observed a prize thrashing machine, well adapted for the small occupation of the West of England, and manufactured by a Devonshire mechanic. It was evidently a good machine, and, judging from Mr. Caldwell's speech after the annual dinner, it appeared to do its work with far less damage to the corn than many of the higher-priced machines. The judges appeared to have taken from Stand No. 2 Mr. Robert Boby's corn-screen, for the purpose of testing the finished corn of the different thrashing machines, and this tell-tale soon surprised the spectators by separating a considerable quantity of broken corn from the samples. To this corn-screen the judges made a special award, and highly commended the corn-dressing machine exhibited by the same person. The exhibitor stated he had refused to comply with the conditions specified because he did not approve of them, contenting himself to secure the high commendation for his machine, which was manifestly the best, rather than the prize, which could only be won by an injury to his machine. The prize did not travel far, for it was given to Stand No. 3, Messrs. Burrow and Page, of Morchand, Devon. We were very much pleased with Mr. Bentall's oilcake-mill, a capital improvement; a strong and substantial mill, so simple that any man can manage, and so complete that it does every description of cracking and crushing which can be needed—from the large size for oxen to the dust used for manure. It was with us a mutual regret that we were not purchasers, having not long since secured a far less valuable mill at the same price. The broadshare he exhibits appears to assume new forms and uses at every exhibition, and promises some day to be available for nearly all farm operations which simply involve cutting and stirring of the land. Mr. Eddy's turnwrest plough attracted much notice, being a most complete implement of its class, and for our steep hills invaluable; in fact, much land now under the plough could scarcely be worked without one of these turn-wrest ploughs; and to get all the modern improvements of light draught and economy of material introduced is to us of the West a very great boon. There was an excellent turnip-thinner exhibited by Mr. Eaton, of Kettering, combining the hoeing of the land with the hoeing out of the turnips in the drill. Its action was steady (a great improvement), and promised to be the means of saving much hand-labour at a time when labourers are with us scarce, and wanted about other work. The two Milfords, of Thorverton, Devon, got the prizes for waggons and carts. They were well made, and the break for the waggons was excellent. We are accustomed to much hilly land in our part, and many of the hills are too steep for using a drag; yet when an ordinary drag or chain is used, it throws work on the horses. This improvement will be valuable amongst us, and will no doubt be frequently adopted; besides which, all the strain upon the joints of the waggon, from the continued jerking on the road, are thus avoided. Mr. Lyne, of Malmesbury, exhibited quite a new description of harrow, evidently a very great improvement over the ordinary harrow, and it promises to combine the advantages of the chain harrow with those of the common harrow. The prize plough for general purposes exhibited by Mr. Wright, of Sandford, Devon, is a really first-class plough; indeed, in the trial-field its work was splendid, and its draught shown by the dynamometer to be exceedingly light. It occurred to us that our horses would often come home less tired than after using an ordinary plough, could we get our farms furnished with these ploughs; and it also occurred to us that a dynamometer, which can be purchased for about £3, would soon repay the cost, as it would enable us to check our *heavy-going* implements, and find out what is wrong. There is no doubt we are continually expending *uselessly* a very considerable amount of horseflesh simply from not knowing the draught of our implements. There was an excellent horse-rake also shown by Wright, of Sandford, which added to its value to us by being fitted so as to go through our narrow roads and gates, which have prevented our using the ordinary horse-rake in numberless cases. The arrangement is simple; for the rake is drawn the narrow way, instead of (as is usual) the wide way, and the shafts are moved when in the field. Many a farmer, who could not (for the reasons named) avail himself of this valuable field implement, will be restricted no longer. There were also some small portable engines, which will be exceedingly valuable on small farms. Of these, the two-horse engine exhibited by Mr. James Haywood, jun., of Derby, appeared to us the most useful and economical. There cannot be a doubt but that the introduction of these engines will extend the circle of purchasers very materially, and that many who have not had scope to justify the purchase of one of our larger engines, will not hesitate to invest in these, which are at once more suitable and less expensive. We were glad to see that special provision had been made for drills and horse-hoes for our hilly lands; and the farmers of such land will welcome Messrs. Holmes' (of Norwich) drills and Mr. Carson's (of Warminster) horse-hoes.

I fear I have already prolonged my letter on the implement department to too great length. But there are some points I wish to notice in the live-stock department. The remarks made by Mr. Smith at the annual dinner are worthy of much consideration, striking as they cannot fail to be; but in no respect are they more important than on the subject so briefly (for the present) alluded to—the girths of different sheep. Certainly the Exmoors showed themselves to very great advantage at this Show; and although it must be admitted that more care had evidently been given in preparing them for the Show, yet it must also be granted that they proved themselves worthy of it, and came out to the admiration of all. It does appear to us that these sheep have an extraordinary vigour of constitution, combined with their other good qualities—viz., good breeders, excellent nurses, prime quality meat, an aptitude for fattening, and the energy and strength necessary for grazing hilly pastures. The show of cattle was very good; and, altogether, we think the Welsh farmers must have been astonished to see the perfection to which farm-stock and implements have been brought; and this seems the more probable, when we remember the extraordinary pens of sheep exhibited from the neighbourhood of Cardiff. These certainly showed the necessity for improved blood in the Welsh flock, more skill in the shearers, and more knowledge of the value of cake and artificial food for stock intended to be exhibited.

I am, Sir, your obedient servant,

A West Country Farmer.

ROYAL CORNWALL AGRICULTURAL ASSOCIATION.

This association having been organized as a county migrating society, the first meeting under the new arrangement was held on Tuesday, June 8, at Camborne, in connexion with the East Penwith Agricultural Society. The show of cattle was excellent, there were twelve Devon bulls, calved previous to June 1856, and six young Devon bulls. The old bulls were a very good show; two of them, which won the first and second prizes, were very fine animals, and most of the others were good, useful stock. The first prize bull belonged to Mr. Wm. Harvey, of Hayle Foundry, bred by Mr. Andrew, of St. Mewan; it was a seven years old bull, and a highly superior animal. Amongst the young Devon bulls, the first prize one, belonging to Mr. James Tremain, Newlyn, was a very good young bull, but the others were not worthy of special notice. The Devon cows were a numerous show; the entries were eighteen, and they were considered to be the best lot that has ever been seen in the county together. The judges had some difficulty in awarding the prizes. Mr. Hodge, of Tregony, won the first prize with a five years old cow, bred by Mr. Quartley; and Mr. Anstey, of Menabilly, came second in the list. Of the Devon heifers, the three prizes were all carried off by Mr. Anstey. The first prize was a fine heifer, bred by the owner.

The Short-horn cattle attracted a great deal of notice. The old bulls were a good show, three being shown by Messrs. Doble and Company of Probus. They were very fine cattle, and No. 9 carried off the first prize, a bull 5½ years old. The young short-horn bulls were a good show as to size and quality. The first prize bull, belonging to Mr. Thomas Hicks, of Gerrans, bred by Mr. W. Trethewy, was a very superior animial both for symmetry and quality. The short-horn cows and heifers were about thirty, and there were some very good animals amongst them. Mr. W. Trethewy carried off the first and second prizes for cows; and Mr. John Tyacke, of Constantine, for heifers.

The Leicester old rams were a superior show. Some of the yearling rams were of the first-class, and scarcely seemed to admit of any improvement; but others were poor ones, and, as a whole, the yearlings were not so good as the old rams. Mr. Jas. Tremain exhibited the best old ram, and the three best hog-rams. Of the Cotswolds, only two were shown, one a good one. Three South-downs were exhibited, a very good one being classed as extra stock. There were six pens of Leicester yearling ewes; one was a superior pen; of the others not much can be said. The old ewes were five pens, and the first prize lot was a very good one. There were four pens of wethers, three very good, one a poor lot.

The horse show was well supplied, there being entered in the different classes as many as 64. The stallions for hacks or hunters were noble animals, and universally admired. The mares for hacks or hunters were also very good; and there were some good geldings and fillies. The agricultural horses were a large show. In the class of stallions the first prize was won by Mr. Sparks, of Truro, and the second lay between Mr. Hawke and Mr. Kellow; it was thought, however, that Mr. Hawke's was the better goer. The mares for agricultural purposes were a very creditable lot. The geldings were only two, and the first prize was withheld for want of merit. The fillies were better than the geldings, but not so good as could be wished. The pigs were a smaller show than might have been expected. The small breed were very good pigs; the large breed were only two, and those inferior.

JUDGES.—For Cattle: Mr. John Wills, Southpetherwin; Mr. G. Stephens, Liskeard; and Mr. Richard Pollard, Bodieve. For Sheep: Mr. Tresawna, Probus; Mr. Mark Guy, Endellion; and Mr. J. Thomas, Constantine. For Horses: Mr. Charles Ward, Plymouth; Mr. Dunn, St. Austell; and Mr. C. W. Parks, St. Enoder. For Pigs: Mr. John Rosewarne, Gwinear; Mr. William Rickard; and Capt. Joseph Vivian, Camborne.

LIST OF PRIZES.

CATTLE.

DEVONS.

For the best bull, calved previous to 1st of June, 1856, £10, Mr. Harvey, Trelissick, Hayle; second, £5, Mr. William Clark, St. Ewe; third, £3, Mr. William Treffry, Ruan.

For the best bull, calved since 1st of June, 1856, £10, Mr. James Tremain, Trevarthen; second, £5, Mr. Thomas Julyan, Creed; third, £3, Mr. Samuel Anstey, Menabilly.

For the best cow, calved previous to 1st of June, 1855, £5, Mr. Hodge, Tregony; second, £3, Mr. Samuel Anstey, Menabilly; third, £2, Mr. James Tremain.

For the best heifer, calved since 1st of June, 1855, £5, Mr. Samuel Anstey, Menabilly; second, £3, Mr. Samuel Anstey, Menabilly; third, £2, Mr. Samuel Anstey, Menabilly.

SHORTHORNS.

For the best bull, calved previous to 1st of June, 1856, £10, Messrs. Doble and Co., Probus; second, £5, Messrs. Doble and Co., Probus; third, £3, Mr. W. R. T. Pender, Budock Vean.

For the best bull, calved since 1st of June, 1856, £10, Mr. Thomas Hicks, Gerrans; second, £5, Mr. James Davies, St. Ewe; third. £3, Mr. John Tyack, Constantine.

For the best cow, calved previous to 1st of June, 1855, £5, Mr. William Trethewy, Probus; second, £3, Mr. Trethewy; third, £2, Mr. Charles Farley, Truro.

For the best heifer, calved since 1st of June, 1855, £5, Mr. John Tyack, Constantine; second, £3, Mr. John Tyack, Constantine; third, £2, Mr. George Williams, Trevince.

SHEEP.

LEICESTER.

For the best yearling ram, 6*l.*, Mr. James Tremain, Newlyn; second, 4*l.*, Mr. James Tremain, Newlyn; third, 2*l.*, Mr. James Tremain, Newlyn.

For the best ram of any other age, 6*l.*, Mr. James Tremain, Newlyn; second, 4*l.*, Mr. Glanville, Colan; third, 2*l.*, Mr. William Clark, St. Ewe.

For the best pen of five old ewes that have reared their lambs this season, 4*l.*, Messrs. W. and C. Sobey, Lanivet; second, 2*l.*, Mr. Richard Rosewarne, Gwinear; third, 1*l.*, Mr. Richard Doble, Probus.

For the best pen of five yearling ewes, 4*l.*, Mr. James Tremain, Newlyn; second, 2*l.*, Mr. John Thomas, Trethingey; third, 1*l.*, Mr. Richard Rosewarne, Gwinear.

For the best pen of five yearling wethers, 3*l.*, Mr. Richard Doble, Probus; second, 2*l.*, Mr. W. Trethewy, Probus; third, 1*l.*, Mr. W. Trethewy, Probus.

For the best Cotswold ram, 5*l.*, Mr. Richard Davey, M.P., Redruth.

For the best Southdown ram, 5*l.*, Mr. Armitage, Penzance.

Offered by Lord Viscount Falmouth.

For the best fleece of wool exhibited, 1*l.*, Mr. Robert Nicholls, Lostwithiel.

HORSES.

FOR AGRICULTURAL PURPOSES.

For the best stallion, 10*l.*, Mr. Richard Sparks, Truro; second, 5*l.*, Mr. William Hawke, Falmouth.

For the best mare and foal, or in-foal, 5*l*., Mr. R. H. Vincent, St. Ewe; second, 3*l*., Mr. J. Cardell, Colan.

For the second best three-year-old gelding, 2*l*., Mr. Josiah Robins, Kenwyn.

For the best three-year-old filly, 3*l*., Mr. James Tremain, Newlyn; second, 2*l*., Mr. Thomas, St. Winnow.

FOR HACKS OR HUNTERS.

For the best stallion, 10*l*., Mr. James Northey, Borough Kelly; second, 5*l*., Messrs. Richard Quick and Co., St. Just.

For the best mare and foal, or in-foal, 5*l*., Mr. Frederick Williams, Tregullow; second, 3*l*., the Hon. Mrs. Gilbert, Trelissick.

For the best three-year-old gelding, 3*l*., Mr. Edward, Collins; second, 2*l*., Mr. R. Davey, Poulsue.

For the best three-year-old filly, 3*l*., Mr. James Lemon, Germoe; second, 2*l*., Mr. Joseph Vivian, jun., Camborne.

PIGS.

LARGE BREED.

For the best boar, £3, Mr. George Pearse, Kenwyn.

For the best breeding sow in farrow, or that has farrowed within six months of the meeting, £3, Mr. F. Basset, Illogan.

SMALL BREED.

For the best boar, £3, Mr. J. R. James, St. Just; second, £2, Mr. Thomas Russell, Sithney.

For the best breeding sow in farrow, or that has farrowed within six months of the meeting, £3, Mr. Robert Bilkey, Tremenheere, Ludgvan; second, £2, Mr. John Knight, Truro.

THE DINNER.

The dinner, in connexion with the society, took place in the large room over the Camborne Market House, which was conveniently fitted up for the occasion, and decorated with flags and evergreens. The chair was taken at two o'clock by Mr. Richard Davey, M.P., and at the same table with the chairman were Mr. John Francis Buller, the High Sheriff of Cornwall, Mr. Augustus Smith, M.P., Hon. and Rev. J. Townshend Boscawen, Mr. W. H. Pole Carew, Mr Tremayne, Mr. John St. Aubyn, Mr. Richard Foster, Mr. Howell, Mr. Augustus Coryton, Mr. T. S. Bolitho, Mr. Edward Bolitho, Mr. Edward Collins, Mr. W. Morshead, Mr. D. W. Horndon, Mr. R. Pearce, Mr. Tyacke, Rev. T. Phillpotts, Rev. J. Perry, Rev. J. W. Johns, and many other gentlemen. The arrangements of the tables, and of the room generally, were well suited to the occasion. The vice-presidents were Mr. Hendy, Mr. James Paull, and Capt. Joseph Vivian. About three hundred and fifty dined, and an ample and excellent provision was made to this large company by Mr. Crouch, of the Hotel, Camborne. —Abridged from the *West Briton*.

GLASGOW AGRICULTURAL SOCIETY.

This society's sixth annual summer exhibition of cattle, swine, dairy produce, and implements and machines, took place Tuesday, June 8, in the Cattle-market, Graham's-square. The weather was auspiciously beautiful, and there was a large and respectable concourse of spectators. In point of quality the stock exhibited was good, and the entries were about the same as last year. There was a pretty large variety of implements and machines exhibited, including ploughs, harrows, fans, crushers, rollers, &c.—indeed, this is the only occasion when there has been anything like a show of implements. At a meeting of the directors of the society, held on the 2nd inst., A. Campbell Colquhoun, Esq., yr., of Killermont, in the chair: Attention was called to certain deceptions practised at the recent show at Ayr; and, on the motion of Mark Sprott, Esq., of Garnkirk, seconded by James Campbell, Esq., yr., of Tillichewan, it was resolved to instruct the judges at the ensuing show to pay particular attention to the appearance of the animals exhibited, so that any such practices, if they have been resorted to, might be detected, and the animals not only excluded from competition, but the owners of them subjected to any other penalty which the directors might think it necessary to impose. During the day, it was found necessary to examine the bull 151, belonging to John Stewart, Burnside Cottage, Strathaven; and Mr. Cockburn, veterinary surgeon, gave in his report to the directors that a portion of the dewlap had been excised, but not recently. The directors therefore agreed, by 18 to 2, that the bull be excluded from competition. The following gentlemen officiated as judges:

Ayrshire Breed.—Messrs. A. Buchanan, Garscadden, Mains, Maryhill: Andrew M'Gregor, Hitton, Kilmarnock; James Salmon, Benston, Johnstone.

Short-horned and Polled Cattle, Leicester, Cheviot, and South-Down Sheep.—Messrs. John Dudgeon, Almondhill, Kirkliston; Thomas Simson, Blainslie, Lauder; Robert Hardie, Herriotfield, Kelso.

West Highland Cattle, Blackfaced Sheep, and Swine—Messrs. John M'Farlane, Faslane, Gairlochhead; Peter Geekie, factor, Scone.

Horses for Agricultural Purposes.—Messrs. Matthew Young, Knockendale, Symington; Robert Wilson, Frithfield, Anstruther; and John S. Jack, Carrot, Stirling.

Roadsters.—Messrs. Wm. Lang of Groatholm, Kilwinning; George Stodart, St. Vincent-place, Glasgow; and John Hamilton, Greenbank, Mearns.

The following is the prize list:—

CATTLE.

AYRSHIRE BREED.

Cow in Milk—1, Wm. Kirkwood, Shankston, Ayr; 2, Hugh Donald, 13, William-street, Johnstone; 3, Alexander Wilson Forehouse, Kilbarchan; 4, H. M. Cunninghame, Carskeock, Patna.

Cow, bred by Exhibitor—1, Laurence Drew, Merryton, Hamilton; 2, John Anderson, Smithston, Croy, Kilsyth; 3, William Hay Orchardton, Kirkintilloch.

Three-year-old Cow.—1, George Pender, Dumbreck, Kilsyth; 2, Hugh Donald, 13, William-street, Johnstone; 3, J. Houston, Geilston, Cardross.

Pair of Cows, in Milk bred by Exhibitor, and never out of his Possession.—A silver medal, given by the representatives of the late William Lockhart, Esq., M.P.—to George Pender, Dumbreck, Kilsyth; certificate of merit—Wm. Orr, Linthills, Lochwinnoch.

Two-year-old Quey in Milk—1, Alex. Fleming, Avon Mills, Hamilton; 2, John Stewart, Burnside Cottage, Strathaven; 3, Robert Kirkwood, Highlongmuir, Kilmaurs.

Two-year-old Quey in Calf or Milk, bred by Exhibitor—1, A. Fleming, Avon Mills, Hamilton; 2, Alex. Wilson, Forehouse, Kilbarchan; 3, James Williamson, Stonefield, Blantyre.

Three Cows of any Age.—1, John Stewart, Burnside Cottage, Strathaven; 2, Robert Russell, Canal-street, Paisley; 3, Laurence Drew, Merriton, Hamilton.

Pair Three-year-old Cows—1, R. M'Kean, Ballewan, Strathblane; 2, Robert Kirkwood, Highlongmuir, Kilmaurs; 3, Wm. Hay, Orchardton, Muirhead, Kirkintilloch.

Pair of Cows in Milk, kept by Dairyman within the Parliamentary or Police Boundary of Glasgow, and suited for Stall-feeding—1 and 2, James Stark, Garngadhill, Glasgow.

Cow in Calf—1, W. Hay, Orchardton, Muirhead, Kirkintilloch; 2, John Parker, Broomlands, Irvine; 3, John Stewart, Burnside Cottage, Strathaven; 4, Duncan M'Farlane Torr, Helensburgh.

Two-year-old Quey Yeald and not in Calf—1, George Pender, Dumbreck, Kilsyth ; 2, John Stewart, Burnside Cottage, Strathaven ; 3, A. B. Armour, of Meiklehill, Kirkintilloch.

One-year-old Quey—1, John Stewart, Burnside Cottage, Strathaven ; 2, David Bickett, Muirs, Dunlop ; 3, Alex. Findlay, Mainhill, Baillieston.

Bull, calved before 1st Jan., 1856—1, Sir James Colquhoun, Bart., of Luss ; 2, Ivie Campbell, Dalgig, New Cumnock ; 3, Geo. Paton, Bankhead, Patrick ; 4, James Stone, Ardochrig, Kilbride.

Two-year-old Bull—1, John Parker, Broomlands, Irvine ; 2, Lawrence Drew, Merriton, Hamilton ; 3, Edward Watson, Crawford John Mains, Crawford John ; 4, William Lang of Groatholm, Monk Castle, Kilwinning.

One-year-old Bull—1, George Dow, Sym's Hill, Cathcart ; 2, James Rennie, Kessington, New Kilpatrick ; 3, John Stewart, Burnside Cottage, Strathaven ; 4, James Williamson, Stonefield, Blantyre.

A silver medal was awarded to Lawrence Drew, as breeder of the best of the prize cows ; to ditto as breeder of the best of the prize queys ; and to Alexander Fleming, Avon Mills, Hamilton, as breeder of the best of the prize bulls.

SHORTHORN BREED.

Bull calved before 1st January, 1856—1, Lord Kinnaird, Rossie Priory, Inchture ; 2, Alexander Rintoul, Ladywell, Auchterarder.

Bull calved after 1st January, 1856—1, William Walker, Inner Avon, Polmont ; 2, Messrs. Turnbull, Bonhill Place, Dumbarton.

Cow, of any age—1 and 2, James Douglas, Athelstaneford, Drem, East-Lothian ; 3, Alexander Learmouth, North Bank, Borrowstonness.

Heifer calved after 1st January, 1856—1 and 2, James Douglas, Athelstaneford, Drem.

Heifer calved after 1st January, 1857—1 and 2, James Douglas, Athelstaneford, Drem.

Two silver medals were awarded to James Douglas, Athelstaneford, as breeder of the best of the prize bulls, and breeder of the best prize cow or heifer.

WEST HIGHLAND.

Bull calved before 1st January, 1856—Allan Pollok, of Faside, Mearns.

Two-year-old Bull—1 and 2, Allan Pollok, of Faside, Mearns.

One-year-old Bull—Duncan M'Arthur, Achadunan, Cairndow.

Cow, of any age, having had a Calf in 1858—1 and 2, Allan Pollok, of Faside Mearns.

Heifer calved after 1st January, 1855—Allan Pollok, of Faside, Mearns.

Heifer calved after 1st January, 1856—1 and 2, Allan Pollok, of Faside, Mearns.

Two silver medals were awarded to Allan Pollok, Faside, the breeder of the best of the prize bulls, and the breeder of the best prize cow and heifer.

POLLED BREED.

Bull calved before 1st January, 1856—1 and 2, Allan Pollok, of Faside, Mearns.

Two-year-old Bull—Allan Pollok, of Faside, Mearns.

Heifer calved after 1st January, 1856—1 and 2, Allan Pollok, of Faside, Mearns.

Two silver medals were awarded to Allan Pollok, of Faside, Mearns, as breeder (and also proprietor) of the best of the prize bulls, and of the best of the prize cows and heifers.

HORSES.

FOR AGRICULTURAL PURPOSES.

Brood Mare, in Foal, or with a Foal at foot—1, James Russell Shawhill, Mearns ; 2, Robert Morton, Dalmuir ; 3, Matthew Gilmour, Inchinnan, Paisley ; 4, Hugh Taylor, Bullhill, Kilmarnock.

Yeald Mare—1, D. C. R. Carrick Buchanan, of Drumpeller, Coatbridge ; 2, Andrew Renfrew, Burrauce, Newton, Mearns ; 3, James Hay, Law Farm, Duntocher ; 4, Robert M'Kean, Lumloch, Cadder.

Three-year-old Filly—1, Dugald Napier, East Milton-street, Glasgow ; 2, David Riddell, Kilbowie, Duntocher ; 3, George Morton, Inchbelly, Kirkintilloch.

Three-year-old Gelding—1, Richard Cullen, Windedge, Motherwell ; 2, William Muir, Hardington Mains, Wiston.

Two-year-old Filly—1, James Kerr, Barrodger, Lochwinnoch ; 2, Matthew Gilmour, Inchinnan, Paisley ; 3, Robt. Morton, Dalmuir.

One-year-old Filly—1, Jas. Eason, Inches, Larbert ; 2, Wm. Paisley, High Walton, Mearns ; 3, Wm. Muir, Hardington Mains, Wiston.

Two-year-old entire Colt—1, Peter Crawford, Dumgoyach, Strathblane ; 2 and 3, James Salmon, Benstone, Paisley ; 4, J. Kerr, Morton, Mid-Calder.

One-year-old entire Colt—1, Andrew Logan, Crossflat, Kilbarchan ; 2, Wm. Park, Balquhanran, Dalmuir ; 3, J. Dunn, Laggan, Strathblane.

Draught Mare or Gelding, in harness—1, Alex. Gardner, Linclive, Paisley ; 2, Robert Hannah, St. Rollox, Glasgow ; 3, Robert Murdoch, Hallside, Cambuslang ; 4, Thomas Kerr, East Fulton, Johnstone ; 5, Dugald Napier, East Milton-street, Glasgow.

Pair draught Mares or Geldings, in harness—1, Alexander Cameron, Bogside, Springburn ; 2, Robert Hannah, St. Rollox, Glasgow ; 3, Dugald Napier, East Milton-street, Glasgow.

A silver medal was awarded to the breeder of the best of the prize mares, D. C. R. C. Buchanan, Drumpeller ; to the breeder of the best of the prize fillies, Thomas Kinloch, Bridgend, Kilmalcolm ; and to the breeder of the best of the prize entire colts, Peter Crawford, Strathblane.

ROADSTERS.

Horse or Mare—1, H. Fleming Edmiston, Yoker ; 2, Laurence Drew, Merryton, Hamilton ; 3 and 4, Allan Pollok, of Faside, Mearns.

Pony, suited for sweet milk cart, not exceeding 14½ hands high—1, Robert Russel, Canal-street, Paisley ; 2, George Robertson, Maryhill ; 3, William Johnston, Dumbarton-road, Patrick.

Horse or Mare, suited for buttermilk cart, not exceeding 15 hands high—1, Mr. Thomas Scott, Houghhead, Hamilton ; 2, Andrew Pollok, Muirhouse, Eaglesham ; 3, George M'Murrich, North Mains, Houston.

SHEEP.

LEICESTER.

Tup not more than three-shear—1 and 2, Lord Kinnaird, Rossie Priory, Inchture.

Tup, lambed after 1st Jan., 1857—1 and 2, James Melvin, Bonnington, Ratho.

Pen of three Ewes, not more than three-shear, with Lamb at foot—1, James Salmon, Benstone, Paisley ; 2, Alex. Graham, Summerston, East Kilpatrick.

Pen of Three Ewe Hoggs, lambed after 1st Jan., 1857—1 and 2, James Melvin, Bonnington, Ratho.

SOUTHDOWN.

Tup, lambed after 1st Jan., 1856—1 and 2, R. Scot Skirving, Camptown, Drem.

Pen of Three Ewes, lambed after 1st Jan, 1856—1 and 2, R. Scot Skirving.

BLACKFACED.

Pen of Three Tups, not more than three-shear—1, D. Foyer, Knowehead, Campsie ; John Watson, Nisbet Culter, Biggar.

Pen of Three Tups, lambed after 1st Jan., 1857—1, J. Watson ; 2, James Coubrough, Blairtumnock, Campsie.

Pen of Five Ewes, not more than three-shear, with Lamb at Foot—1, Allan Pollok, of Faside, Mearns ; 2, William Turner, of Gavinburn, Old Kilpatrick.

Pen of Five Ewe Hoggs, lambed after 1st Jan., 1857—1, A. Lusk, Craigcaffie, Stranraer ; 2, Allan Pollok.

SWINE.

Boar, Large Breed—1, Thomas Sadler, Norton Mains, Ratho ; 2, John Gordon, of Aitkenhead, Cathcart.

Sow, Large Breed—1, James Skinner, Woodside, Aberdeen ; 2, John Gordon, of Aitkenhead, Cathcart.

Boar, Small Breed—1, John Webster, Thankerton, Holytown ; 2, James Skinner, Woodside, Aberdeen ; 3, Thomas Sadler, Norton Mains, Ratho.

Sow, Small Breed—1, Thomas Allan, Westerwood, Cumbernauld ; 2, John Webster, Thankerton, Holytown.

A PAPER ON SWINE.

[*Read before the Committee of the Worcester (Massachusetts) Agricultural Society.*]

Mr. President and Gentlemen,—With instinctive modesty I appear before you as Chairman of the Committee on Swine, deeply feeling, as I do, the responsibilities of the position I have unwittingly, and I fear unwisely, assumed; but, gentlemen, relying on your well-known courtesy, I have endeavoured faithfully, and to the best of my ability, to discharge the task which you have assigned me.

It is placing one in a very awkward predicament, to be invited out to a dinner or evening party, and when the ices or jellies have disappeared, to receive a quiet intimation from host or hostess, that the time is arrived when he is expected to be exceeding funny. Such a hint, however deliberately administered, would chill the heart of the merriest, and banish every thought of jest or humour, unless, like the farmer's farrow cow, the luckless individual possess the faculty of never drying-up, but is ever prepared to give down fun, frolic, and comical stories the whole year round.

The traditions of the past, the hallowed usages of days gone by, all point to the report of the Pig Committee, as the peculiar and proper vehicle for fun in the celebration of our Society. Prosy we dare not be, merry we would be; but the tricksy spirit which inspires with wit and humour is coy indeed, and comes not always at bidding, though wooed never so ardently. Wit, fun, and frolic are like the dew-drops that sparkle and glitter in the bright sunlight but for a moment; sprite-like they come and go—whence or whither no one knows. After an earnest invocation to the Deity of Fun, that she will grant me a few ideas which may interest or amuse you, I proceed with the subject.

Historically, socially, and gastronomically, the pig demands our careful attention. The connection with commerce, with the cuisine, and even with the great interest of fire insurance, have all made him an object of particular regard. In the early days of the Celestial Empire—as we learn from the veracious writings of the witty and voracious essayist, Charles Lamb—a wealthy Chinaman was so unfortunate as to have his dwelling destroyed by fire. Prowling around the smoking ruins, and seeking to save some of his valuables which the conflagration might have spared, his hand came in contact with the smoking remains of a poor pig which had perished in the flames; instantly, smarting with the pain, he carried his hand to his mouth, when a peculiar flavour greeted his palate, such as the gods (Chinese ones I mean, of course) might in vain have sighed for. Regardless of pain he applied himself once more, and drew forth from the smoking cinders the remains of the pig. Carefully brushing off the ashes, he regaled himself with the feast before him, but closely preserved the secret he had learned. In a few short months, however, the taste for roast pig came back so strong, that John Chinaman's house was burned down again, and again was a pig found in the ashes. This was repeated so often that the neighbours grew suspicious, and watched until they ascertained that the reason for the conflagration was the feast that invariably followed. Once out, the secret spread like wildfire; every hill-top shone with the flames of a burning habitation—every valley was blackened with the ashes of a homestead; but roast pig was dearer to a Chinaman than home or honour, and still the work of destruction went on. Alarmed at a course which bid fair to ruin every insurance office in the empire, the directors petitioned in a body to the General Court of China, for the passing of an Act that should arrest the evil and avert their threatened ruin; and a careful examination of the revised statutes of China would probably show stringent resolutions against the crime of burning houses for the sake of roasting pigs.

Since the invention of the modern cooking stove, however, although incendiarism has decreased only in a slight degree, still it has ceased to be attributed to this cause, and a juicy crackling is no longer suggestive of fallen rafters or a houseless family.

There is an old adage, "Give a dog a bad name, and his ruin is accomplished." Such may be true of the canine race; but the noble family of animals of which I am treating furnishes a striking illustration that the proverb applies not to their numbers. A goose, it is said, saved lordly Rome by its cackling; and had not their list of Divinities just then been full, a grateful people would have found for him a sedgy pool and quiet nest in Olympus. How did the ancestors of that same people repay the pig for a service scarcely less important?

The veriest smatterer in the classics knows, that, when from flaming Troy, "Æneas the great Anchises bore," seeking in strange lands a new home for his conquered people, a white sow, attended by thirty white little pigs, pure as herself, pointed out to him the scene of his future empire. But what did he and his people do for the pig in return? Did they load him with honours? Did they cherish him with corn? Did they treat him with respect? No! with black ingratitude, which still merits the indignation of every admirer of the pig, they affixed to the animal the appellation of "*Porcus*;" and "poor cuss" the pig would have been to the present day, had not the Latin tongue long since ceased to be the language of the world. But "poor cuss" he is no longer, when in Worcester county he spurns his classic name, and, adopting the vernacular, he "grows the whole hog," that he may "pork us," in return for the care which we bestow upon him.

For the sake of our farmers, who are anxious to make a profit from pig-raising, it is greatly to be regretted that the thirty-at-a-litter breed, already alluded to, has disappeared from the face of the earth. Breeding swine with such a rate of increase must be almost as profitable as "shaving" notes at two per cent. per month; but still the impression is irresistibly forced upon us, that, in a family so numerous, those who came last to dinner, at least in their infant days, would not have gained flesh very rapidly. Indeed, in such a family it would seem almost impossible to dispense with the services of a wet nurse, in order to bring up profitably the rising generation.

The course of the pig, like that of the Star of Empire, has ever tended westward. From China we trace him to Italy, the gloomy mountains of the Hartz, the broad plains of Westphalia, the fertile valleys of France, and to the waving forests of "Merrie England;" all have known him since the days when their bold barons and hungry retainers sat down to feast on the juicy chine of the wild boar, and the savoury haunch of venison. In green Erin piggy has been an important member of society; true, he has shared his master's meal, and basked in the comfortable warmth of his cabin; but, like a "gintleman" as he is, he has ever paid the "rint;" and St. Patrick, in the plenitude of his power and influence, never saw the day he could have banished him from that "gem of the ocean."

When the pig first crossed to this western world remains in doubt. Whether he came with the Pilgrims, pressing with the foot of a pioneer the Blarney-stone of New England, and scanning with fearless eye the cheerless prospect before him, or whether, regardless of liberty of conscience, and careful only of his own comfort, he waited till the first trials and toils of a new settlement had been met and overcome, we have no record; enough for us that he is here; how or where he came concerns us not. He is among us and of us. From souse to sausage we have loved him; from ham to harselet we have honoured him; from chine to chops we have cherished him. The care we have shown him has been repaid a hundred-fold. He has loaded our tables, and lighted our fire-sides, and smiling plenty has followed in his steps, where hungry famine would have stalked in his absence.

But still further towards the setting sun has been the arena of the pig's greatest triumphs; there have been the fields of his widest influence. Beneath the vast forests of Ohio, raining to the ground their yearly harvests of mast—through her broad corn-fields, stretching as far as the eye can see, he has roamed, and fed, and fattened. From him, and the commercial interests he has mainly contributed to establish, has grown a mighty State, scarcely second to any in this confederacy; from his ashes has arisen a new order in society—the "Bristleocracy of the great West."

A broad levee bustling with business, lofty and spacious stores and slaughter-houses, crowded pens, and a river bearing on its bosom steamboats in fleets—all attest the influence which the pig has exerted on the agricultural and commercial interests of the great State of Ohio. He has filled the coffers of her bankers, and has bought the silks which cover her belles. He has built the beautiful palaces which adorn the "Queen City of the West," and feeds the princely luxury of those who inhabit them. *There* he is almost an object of worship, and his possession is considered as about equivalent to a patent of nobility. Fancy dimly paints the picture, when a few years hence, the wealthy pork merchant, who justly boasts his numerous *quarterings*, shall, in the true spirit of heraldry, paint on the panel of his carriage, and on the escutcheon over his doorway, a lustrous shield, bearing in brilliant colours a single pig, his bristles all *rampant*, his tail closely *curlant*, and his mouth widely *opant*, till the lions, the griffins, and the unicorns of the Old World shall fade into insignificance before the heraldic devices of the New." GEORGE S. TAIT, *Chairman.*

VOLUNTARY TAXATION.

SIR,—Methinks I hear some of your readers repeat the words, and say, "Voluntary taxation! what can that mean?" Paying taxes is no such pleasing duty; but to be freed from them is, I believe, the desire of every individual, and to mitigate taxation constitutes much of the labours of every statesman. Seeing, therefore, that freedom from taxes is so ardently desired by all, how, it will be asked, are we to reconcile this with the expression "voluntary taxation," or the act of a man's taxing himself? Perhaps the quotation of a passage from the works of Dr. Benjamin Franklin will serve to introduce the subject upon which I propose making a few remarks. "Friends," says he, "and neighbours, the taxes are indeed very heavy, and if those laid on by the government were the only taxes we had to pay, we might more easily discharge them; but we have many others, and much more grievous to some of us. We are taxed twice as much by our idleness, three times as much by our pride, and four times as much by our folly, and from these taxes the commissioners cannot ease or deliver us by allowing an abatement." Now, Sir, we live in an age in which the discoveries of science have done much towards enlightening the minds of the people, and, as a necessary consequence, this increase of knowledge is wielded in the production of evil as well as of good. The progress of civilization has also extended our ideas of luxury, and given scope to the development of pride in the gay world of fashion; consequently the inducements to this description of taxation have been considerably extended since the days of Dr. Franklin, and may afford an opportunity of enumerating a few of the different ways in which this taxation is palmed upon the public, and through which, in a great many instances at least, people voluntarily tax themselves. My remarks shall bear as much as possible upon subjects connected with agriculture, although a passing glance at the impositions through which many of all classes allow themselves to be taxed may not prove uninteresting; and I shall not refer to the first and second means mentioned by Dr. Franklin, through which individuals tax themselves, further than to remark, that, by instituting a rigid investigation into the amount of taxation we impose upon ourselves by idleness and pride, we will be enabled to discover results which before we had but little anticipated. It is, therefore, to the third means, viz., folly, or want of due consideration, that is to be attributed much of that voluntary taxation of which I am about to speak.

The ills to which mankind are subject are numerous, and often very acute; and however incurable our affliction may in reality be, the most distant ray of relief is nevertheless generally grasped at with the greatest eagerness, and the history of the present age is "every man for himself," and how he can prey most largely upon his neighbour, or impose most successfully upon the credulity of the public; hence much money is spent for that which profiteth not, or, in other words, is a certain description of taxation. We have only to unfold almost any London newspaper, and run our eyes over its advertising columns: there we will see remedies the most simple for all diseases—chronic, acute, or hereditary—so that one might almost expect to see mankind freed from the numerous ills to which they are subject, and even death itself overcome. Or, do we want assistance in the difficulties and troubles which beset us in life? then observe such advertisements as the following: "Money to be lent, at a moderate rate of interest, on the borrower's personal security." "A most lucrative business can be obtained by any one who can advance the moderate sum of 500*l*." "Partner wanted in an old-established lucrative business, who can advance a capital of 1,000*l*." "The advertiser can procure for any young man of good business habits an excellent permanent situation, on payment of a small premium." In fact there is no difficult position in which we can be placed, no want with which we can be assailed, no requirement which fancy can suggest, for which this wonderful mart cannot supply an antidote. But when we come to examine more closely the pretensions of most of these advertisers, we shall find that the M.D, F.R.C.S., appended to the name of the would-be physician, is often a complete forgery; that the easy means of obtaining money, the lucrative business, the faithful partner, or the excellent situation, are often nothing else but deep devices to entrap the oppressed and unwary. The grand secret of the business evidently consists in a flashing advertisement, artfully addressed to the wants and requirements of the evil which it professes to cure; and when once the victim gets entangled in the net, there is no danger of escape, until the impostor has accomplished his object, and mulcted him of a considerable sum, and frequently of something much more serious. But the most wonderful thing connected with this business is the fact that with all its apparent publicity, it nevertheless, like masonry, keeps itself a profound secret. No one, who has allowed himself or herself to be victimized, dares to acknowledge the fact; or however smart he may have been compelled to pay for his thirst after knowledge, he willingly submits, rather than sacrifice his own character to expose or discover the impostor. Now this is a voluntary tax, which unquestionably produces a large revenue; for if the receipts did nothing more than pay the expense of advertising and correspondence, &c., they must needs be something considerable; but we may infer that unless there were some greater encouragement than this, the system would soon fall to the ground.

But if for a short time we step out of the arena of what may be denominated regular impositions, and set ourselves about inquiring into what may be considered a more legitimate means of earning a livelihood, we shall see taxation to a considerable extent carried out under the auspices and with the full sanction of the tax-payers themselves. We have artificial manures of almost every description, brought to us from almost every clime, possessing every requisite quality, composed of almost every material, and called by names which hardly admit us to doubt their value. Now, I should be sorry to condemn artificial manures, for I feel convinced that by the aid of chemistry we shall be enabled to repair the exhausted condition of soils, by manures of a much more portable and specific character than have hitherto been employed; but I complain of the impositions that are practised, the high commissions allowed to agents, and the depreciation of their value by adulteration; and although the article may not be altogether worthless, it nevertheless costs the farmer a price double its real value. Then we have artificial food for cattle, anti-smut powder, for the prevention of smut in wheat, cough-balls for horses, remedies for foot-rot in sheep, cures for pluro-pneumonia, specific for the potato disease, &c. &c. Now all these may possess a certain value; but I have still to be convinced, that any artificial composition which can be prepared will be superior to the best natural productions of the earth, which are suited by nature to the constitution of the animal, and compounded and prepared in the laboratory of that unerring chemist. We have frequently brought before us the effects of over-stimulating, when practised either upon animals or plants. A deviation from Nature's laws, however apparently successful at first, ultimately produces a weakness of constitution, and consequently a liability to disease; a proof of which is afforded by the manifold diseases, to which both the animal and vegetable creation of this day are subject, in comparison with years gone by, when ignorance of science compelled a more strict adherence to the laws of nature; and however time-honoured and generally adopted may be the practice of dressing wheat as a preventive for smut, I have yet to learn of its efficacy, as frequent experiments have never yet shown me the difference between the dressed and the undressed. Of course, for all diseases there are remedies prescribed; some of these may have been discovered by accident, and their application during a lapse of centuries may have established their good name; but why they should be thus efficacious, or how they perform the cure, may never have been inquired into: it is sufficient to know that whilst they are applied, a cure was effected. The introduction of others may be traced to a more recent date, and till that they originated from the investigations of science, and from the known effects of certain of their constituents to counteract certain symptoms by which the disease is known, their efficacy must be doubted; to a certain extent they may prove useful, and if they be not quacks, and positively injurious (which is not unfrequently the case), they may somewhat assist nature; but they will be found to come far short of that never-failing remedy which they are invariably represented to be. Accidents do require skill and attention bestowed upon them; diseases can be modified and assisted to a cure; but that wild frenzy exhibited by some, in having the farrier or medical man always by their side, their unswerving faith in the potency of medicines, is a tax they impose upon themselves, and one not lightly to be borne. They will be sure to find those who will take advantage of their simplicity, and gratify their very utmost wish; and having spent their money for that which is not bread, and, after all, failed to accomplish their end, they console themselves with the pleasing reflection that they have at least done their duty. Their condition is only a modification of that of the Wild Indian, who inflicts upon himself grievous injuries as an atonement for past misdeeds. When we consider the great sums which British farmers must annually spend on such matters, I think it is at least worthy of consideration whether they receive value for their money.

We now come to consider another description of taxation, which may not be altogether voluntary, but in most cases it is countenanced and approved by those who have to bear the burden—I allude to the middle-man. I will not style the speculator an unproductive labourer, because speculation forms a reservoir in which the fruits of abundance are stored up for a time of scarcity. I will not say that the middle-man can be altogether dispensed with in this populous, competing, and commercial nation; but I will endeavour to point out the manner in which a very numerous class obtain a living (and some a very lucrative one) upon almost every commodity, from the time of its leaving the hands of the manufacturer or producer, until it reaches those of the consumer. The nature of transactions is a payment of money for value received; that value may sometimes consist of labour, for by labour a small piece of iron may sometimes be rendered worth double the value of its weight in gold. A value also attaches to every article as it comes raw from the hand of nature; but for the additional price which is stuck on to commodities through the agency of the middle-man, no real value is frequently received. I daresay I shall enumerate some for which a certain value may be received, but the unlimited extent to which it is carried renders it questionable whether the injury does not frequently outweigh the advantage. If we consider the necessaries of life, we shall find that even upon flour—our staple article of consumption—a good many derive profits and commissions; and the farmer, as if unwilling to deprive the miller of his profits, generally sells his wheat to him, and buys his flour for family consumption, subject of course to the miller's profits. He will tell you, that he finds this to be the cheapest plan; but why should it be? If so, it must be because imposition is practised. If we look into the trade in live stock, we shall find the dealer supplying the farmer or rearer with young calves. At the age of two years or eighteen months he will purchase them from the farmer again, sell them very possibly to another dealer, who perhaps disposes of them to the grazier or feeder, who having done his part sells them again to the dealer who most probably transfers them to another dealer, and having passed through the hands of the commission agent or salesman, they eventually become the property of the butcher; all of whom have their profits, which are generally not so small but what they can afford to count them up together over a bottle of good old port. Here again our farmer displays his usual benevolent disposition and gentlemanly habits, by selling his bullocks and sheep to the butcher at 6s. 6d. and 7s. 6d. per stone, and purchasing his beef and mutton for family use at 8d. and 9d. per lb., for what the butcher calls " prime pieces." In a corner of the Corn Exchange we shall find a merchant buying barley on *commission*; he sends it off to the maltster, or, perhaps, malts it himself upon *commission*; at all events it by-and-bye reaches the brewer, who secures a handsome profit by monopolizing the trade, and purchasing a goodly number of public-houses, and allows the liberal commission of 30 per cent. for the sale of his beer. If we turn our attention to articles of clothing, we shall find them also subject to a similar state of things, and, by reason of the incapacity of a great bulk of the public to judge, to impositions of much greater magnitude. Observe, the wool is purchased in the first instance by the dealer, sold to the wool-merchant or wool-stapler, the wool-sorter, the manufacturer; then the goods to the wholesale house, which supports its hosts of agents and travellers riding from town to town, on Sundays as well as week days, putting up at the first-class hotels, and sitting down to the most sumptuous repasts; at length the goods are lodged in the shop of the country woollen-draper, who is very fond of dealing with the ladies; and although he is apparently so exact, and obliged to count his profits so close as to have an odd half-penny attached to the price of almost every article, he is nevertheless very partial to reckoning his profits at cent. per cent. If we look into the coal trade, we shall there find no departure from the usual routine: the coals purchased at Newcastle for I suppose about 7s. per ton, are sold a little further south at from 20s. to 30s. per ton; of course we are told that this is occasioned by the enormously high freights. If we turn to the machines and implements we use upon our farms, we shall find them also taxed by commissions, the circulation of catalogues by thousands, salesmen's travelling expenses, conveyance of machinery to agricultural shows, advertising, &c. But it matters not to what we turn our attention—from the necessaries of life, to the child's toy—all are governed by the same laws. Surely there can be no necessity for all this.

But some may think that it is only the effects of competition, or the natural division of labour, and no doubt but it is so. I regret, however, that much of it is over-paid labour, much of it unproductive labour. We see also that competition, by creating these charges upon commodities, has the effect of raising their price, as well as reducing it. It may also be argued in favour of the middleman, that in that capacity a very numerous body earn a livelihood; but it is a pity that their energies could not be devoted to something which would contribute more to the public weal, and that their whole lives should not be spent in working only for themselves, and picking out of the incomes of their neighbours. We are certainly not so far advanced but that the labours of individuals and the application of capital might yet be rendered productive. Surely this numerous body are not to be looked upon as the supernumeraries of society! But if their cause be defended by the plea that they must do something, and this is all they can do, then to a very great extent they most decidedly are. It may be said again that it is the turn which society has taken; let things alone, they will adjust themselves. This is an error: everything is improved by culture. Man without culture, what is he but a stupid, sensual, disgusting savage? but the same human creature subjected to early training, instructed, disciplined, and christianized, is but " a little lower than the angels." Let things alone, and power will soon overrule weakness, monopoly will crush competition. Let society alone, and it would soon relapse into a state of barbarism.

Farmers, in all these things let me warn you to guard yourselves. The land you cultivate has got many hangers-on to support; and, however much the bustling company of commercial gentlemen may jeer honest plodding farmers, they at the same time court and value your society. Times appear to be changing; then do not despise " Poor Richard's" advice. " Away with your expensive follies, and you will have less cause to complain of hard times and heavy taxes." It is both interesting and essential to look into and consider how the money goes; to observe what we spend upon things really required, and what we could really do without, or what is really useless; to see how one man picks out of another by superior keenness and shrewdness in business; how the progress of the times creates artificial wants, and how artifice imposes upon credulity. The same writer whom I have already quoted says: " There seems to be but three ways of a nation's acquiring wealth: the first is by war, as the Romans did in plundering their conquered neighbours—this is robbery; the second by commerce, which is generally cheating; the third by agriculture, the only honest way wherein a man receives a real increase for the seed thrown into the ground, in a kind of continual miracle wrought by the hand of God in his favour, as a reward for his innocent life and virtuous industry."

Yours obediently,

May 18, 1858. Wm. Arnott.

DURHAM *ALIAS* SHORTHORNED CATTLE SECOND TO NONE FOR PROFIT.

Sir,—By public auction sales the Durham cattle have been proved to stand pre-eminent in price per head, which gigantic prices have struck thousands of wise men with admiration and amazement. They are finding their way into many far-distant climes as being the most profitable breed of cattle upon the whole earth—nay, an ornamental, useful, and a profitable breed. Bulls sold at upwards of 1,000 guineas each! which is wonderful, and a temptation for foreigners to purchase some of them.

These Durhams are not only famous for a great weight of first-class beef at early maturity, but they are famous for the dairy, which is a great consideration, and ought to be particularly attended to, as adding much to the profit of the breed—actual merit being profit. There is no merit in an animal making less than it cost making. The great milkmen of the metropolis do not keep their shorthorned cows for ornament: they keep them for profit; and as milkmen, they prefer the shorthorns, as being the best for their purpose. They do not use the Herefords or Devons, as they do not give so large a quantity of milk as the shorthorns. Therefore it may be clearly asserted that the shorthorns, including their milk, are the most profitable breed of cattle; and the Lincolnshire sheep, including their wool, are the most profitable breed of sheep.

Mill Field, Peterborough, Samuel Arnsby.
13*th May*, 1858.

ESSEX AGRICULTURAL ASSOCIATION.

MEETING AT CHELMSFORD.

If any proof were yet wanting of the permanent good effected by the country meetings of the Royal Agricultural Society, we have it in the establishment of this kindred institution. Without the national society there would have been no such district society. Despite the number of public men, who flourish in the county—notwithstanding the lead so many of them take in matters agricultural—their practice has so far had no home exposition. You associate their sayings and doings rather with the proceedings in Hanover Square; or, more still, with the meetings of the London Club. They even break ground into the adjoining counties, and figure occasionally at both the Norfolk and Suffolk gatherings. The increasing success, however, of either of these, was not sufficient to prompt Essex to originate such a high day of her own. The master-hand was needed, and from it alone was the time taken. The first County meeting at Chelmsford in 'fifty-eight is solely a consequence of the Great National one in 'fifty-six.

It is only fair to say that the signal having been once given, every one appears to have done his best to answer it. There have been few opening meetings held under more encouraging auspices. It afforded a first lesson that is sure to be remembered. Perhaps, there never was a more *uneven* show. Each exhibitor, no doubt, sent the best he could. Many of these entries were of the very best, while some were almost as palpably bad. It is sometimes said that Essex is not a stock district; but such an argument in these days can really mean little or nothing. If a farmer intends to hold his own he must keep good animals in place of bad, let him live where he will. It is only men like Mr. Mechi that can afford to pass over a well-bred beast as the mere plaything of agriculture. But Essex does not need the excuse some of her friends would make for her. There was ample evidence on Tuesday of how much good material there is in the county, as well as of how ready those adjoining are to still further improve it. The Society offered two "all England" premiums—for the best stallion, and for the best bull. Mr. Jonas Webb sent a short-horn from Cambridgeshire, and Mr. Badham a horse from Suffolk. They were either well worthy of the distinction they claimed. The two, in fact, were the lions of the show-field.

In a really very commendable entry of Shorthorns, Mr. Webb's bull still held a place and rank far above all others. For his age, two years and a-half, he is an extraordinary animal; already beautifully developed, and with some of the finest points of his kind. He has great breadth of back, stands wide in front, is very kindly in handling, and has a capital head—with all the properties of the male animal, wanting only that defiant look we find in some of them. To show how strongly this red bull took, we may add that, in the opinion of one of the judges, he was "nearly equal to Master Butterfly." But this is high praise we are scarcely prepared to endorse, at least to its full amount. Mr. Baker, of Writtle, showed another young bull, the first of his class, also much admired, and remarkable for the fair unprepared condition in which he was exhibited. The credit of breeding him is, we believe, due to Mr. Bramston, who sent some most useful, roomy, well-bred cows; while Mr. Fisher Hobbs, Mr. C. Sturgeon, Mr. Barnard, and Mr. Longbourne, had also some well-merited distinction in these classes. Mr. Hobbs, indeed, was, for its general features, the chief supporter of the show. He entered Shorthorn, Hereford, and Alderney cattle; Dorking chicken; and once more his own celebrated breed of pigs. With all, too, he was more or less successful. His Alderney heifer was quite a picked sample of the sort; and his Hereford prize cow, neat and pretty in appearance, was only to be complained of for the over-fed state she had been brought to. As it was, of course some of the sufferers sunk under the effects of their preparation. A pig we can certify to, and one or two more animals we heard of, died upon the field. Does not this kind of thing approach very closely upon cruelty to animals?

We have said the exhibition was an uneven one. There were some of the Shorthorns, for instance, their breeders will never think of showing again as prize beasts; while the specimens of the Devons were quite marvellous to look on. One Devon breeder who was present could scarcely contain himself. Where did Lord Rayleigh get them from? Or, what could his lordship or his man be about, to show such animals? Certainly such bony, narrow, scraggy, wretched-looking things were never seen before, and by this argument the breed does not prosper in Essex. Amongst the other sorts Lady Pigott sent a West Highland bull—a novelty at any rate to many present, and by no means a bad little animal. The few Alderneys, however, had by far the best of the less prominent races.

As with the cattle, the horse-show was of anything but general excellence. Indeed, the entries of hacks and hunters looked more like horses ranged for sale in a fair, rather than as selected for prize purposes. The pick of them was a long low, hack mare, bred by Lord Lonsdale, and shown by Mr. Hutley. She stood about fourteen two, with a most beautiful wicked head, bloodlike neck, and fine shoulder. Had she but a little more "style" throughout, there is no saying what, with her action, such an animal might fetch. There were one or two large roomy hunting mares, although we can hardly identify them at this date, and four or five thorough-bred stallions, from which the judges discreetly refused to name the best. The horse supposed to have most favour with them was disqualified from a bad sand-crack and other ugly blemishes. But the Society quickly "righted" again when it came to the cart-horses. Nowhere out of Suffolk could we have mustered such an entry of that useful breed. It is very evident their Essex neighbours have been long laying the foundation for a good supply. There were grand stallions, mares as worthy of them, and capital working "pairs"—all to be seen in the names of Essex men. A county man, moreover, would tell you seriously they really had the best sorts, but there was no mistake about the open prize going to Mr. Badham. His horse made some sensation at Ipswich last year, where he took the first prize as a three-year-old, and then finished a very close second amongst the aged horses. He is a rare sample of the Suffolks—big, weighty, and compact; has a kinder head than many of them, and with a little more below the knee, might travel some distance to meet his conqueror. As it is, he does not appear to have travelled far for anything. He was shown very fat, and a story was going about, that he took his pail of milk a day! This is worse than the tourists in Yorkshire who could get no cream for breakfast, because a famous bull had put up for the night at the same hotel.

There were but few draught-horses of other breeds, and these stood no chance with the chesnuts. We cannot point out some of the latter so clearly as we could have wished, but must refer to the prize list to distinguish the best, where so many were good. The mares and fillies were generally commendable, and one of the judges assured us he had seldom seen better pairs of plough horses. We can only speak in the same general terms; for there was no catalogue to guide one, or to refresh the memory by that peculiar *mark* nearly every one of us gives to a number that pleases him. Without you walked right up to a horse's or beast's head, you knew nothing as to how he came there. Now, an agricultural show of stock without a catalogue is a meeting minus half its effect and influence. Above all, it is an especial injustice to exhibitors. How the committee could refuse the issue of one is more than we can understand. It was in reality lying ready at their hands for use; for on the same afternoon, between two and three o'clock, or just as the people were leaving the ground for the town, a supplement to the *Essex Herald* was published, in which were given the entries in full! It might not have been quite perfect, but it would have been a vast deal better than no catalogue at all. Many of the animals, horses especially, were often taken out of their standings; and of course, with simply numbers to their heads and nothing to refer to, it was quite impossible to make out what they were. Fortunately the men in charge showed more consideration for the public; and thus information was not quite denied one.

Utterly rudderless then, we land at last at the top of the field, amidst sheep, pigs, and poultry. The sheep were the weak place of the show. The Southdowns, of which they were chiefly composed, lacked substance—"too finely bred" again—the common complaint just now. Mr. Sexton's Cotswold was by far the best entry here. But the pigs were very grand. Mr. Fisher Hobbs brought "the improved Essex" back to all their pristine force and repute. They were, indeed, very taking to look at, and at the same time of more size than some people are ready to allow them. The second prize boar was a perfect picture of a pretty pig—a better head and fore-quarter were never seen. The first prize, however, had a little more *length*, and so the judges eventually drew a line between the two. But it was a very nice distinction. There were a few white pigs and one or two good Berkshires, but the call was all with the Essex. We never remember a better show of them.

Having finished their labours here, one of the Judges of sheep and pigs was summoned to assist in the implement awards—confined to one general prize. A friend in the other field will tell of this warm day's work.

If the men of Essex are known more for one thing than another, it is for their public dinners. During the Free-trade fights they were especially famous in this line; and every now-and-then they still break out again. There were, then, plenty of committee-men with some experience in such a department; and, accordingly, the new Society's dinner ended in this wise—It reminded one of Mr. Pickwick, who, travelling a little further down the Eastern Counties, "ordered a bottle of the worst possible port-wine at the highest possible price, for the good of the house." *Six shillings* was asked and had for a scanty supply of cold meat and cloudy beer. Nothing beyond this—not even was "attendance included;" for there was none, save when you caught a man by main force, and insisted on his bringing a bottle of wine, for love, money, or old acquaintance. It is said the Society would only guarantee for seventy dining, instead of some two or three hundred. It is, though, palpably absurd to assume that so small a party would support the opening day of a new Society like this. Still, if it be true, it certainly affords some excuse for the short supply of loaves and fishes. Six shillings, however, without wine is clearly too high a charge. At the West of England the other day a far more liberal feast was served at four shillings a-head. Mr. Du Cane, who presided, made a smart, able chairman, and spoke more to the point than some who succeeded him. Even the most agricultural of his followers dwelt a little too much on complacent generalities. The meeting was, indeed, chiefly remarkable for the welcome given to certain speakers—Major Beresford and the Rev. Mr. Cox coming in for perfect ovations. In the matter of "cheers" and thumping tables the men of Essex are, when it suits them, very enthusiasts.

THE IMPLEMENT DEPARTMENT.

The exhibition of implements surpassed in extent and value the anticipations of the Society's most sanguine friends. Messrs. Coleman, who received the first prize for the best general collection of implements, had no less than one hundred and thirteen articles on their stand, including various forms and sizes of their celebrated cultivator, hay-rakes, chaff-cutters, ploughs, clod-crushers, horse-hoes, pulpers, carts, waggons, &c.; Burgess and Key's reaper, Hanson's potato-digger, Hornsby's portable steam-engine, and a combined thrashing-machine of their own manufacture, with a peculiar arrangement of the riddles, one below the other, so that the pulse, corn, &c., traverses each riddle in succession without having to be carried backward for the purpose. They have improved the chaff cutter by constructing it with a V-shaped mouth, fixing a comb to clean the teeth of the feed-rollers, and having the rollers made of loose toothed rings, by which all choking is avoided. Their hay-rake has teeth peculiarly curved for holding a large amount of stuff, and the wheels are of large diameter. An improvement is found in the cultivator, the side-wheels being raised or lowered by means of a sliding vertical standard, instead of the old adjustment.

Bentall, who took the second prize, showed a great variety of sizes and adjustments of his famous broad-sharer; a number of ploughs, including the original Goldhanger plough, chaff-cutters, pulpers, rollers, and troughs. He has attached the admirable pulper to an overhand horse-work, which is quite portable, intended for field use, or for transporting from one homestead to another: price £21. The prize for the best improvement in any known implement was awarded to him for his new, simple, and effective oilcake breaker, the adjustments of which are very easy and durable, and the coarser breaking or fine pulverizing is completely effected: price £5. The two-horse portable engine, with iron intermediate motion, with straps and shafting, driving a small thrashing-machine capable of knocking out twelve quarters of mown wheat per day, a chaff-cutter, a pulper, and oilcake-mill, was a very neat and useful arrangement of machinery: price 125 guineas.

The third prize was awarded to Messrs. Everett and Taylor, for a good assortment of implements, chaff-cutters, Turner's roller-mills, Holben's barley-hummeller, Smith and Ashby's haymaker, Burgess and Key's reaper.

Messrs. Ransome and Sims had a good stand of implements, but not in competition for the prizes. They showed their portable engine and thrashing-machine, with Brinsmead's rotary shaker, and an improvement which facilitates the delivery of the straw; ploughs, scarifiers, chaff-engines, bean-cutter, oat-crusher, &c.

Messrs. Ward and Silver exhibited scarifiers, dressing-machines, horse-rakes, haymaking-machines, &c.

Messrs. Hunt showed Howard's horse-rake, some chaff-cutters, Crosskill's carts, the American hay-collector, &c.

Impey had Barrett and Exall's haymaker, Parkes's forks, chain-harrows, &c.

Gripper and Co.—troughs, corn-bins, garden-seats, &c.

Catchpool and Thompson—among other articles, a thrashing-machine, having a fixed sloping board instead of a vibrating-table; the corn, &c., which has dropped through the straw-shaker, being carried to the riddle by means of scrapers fixed to the shaker-boxes underneath. If this method would answer, it would effectually get rid of the oscillation and strain and wear of the frame-work, &c., caused by the common shape. They had a double-blast winnowing-machine, iron roller, Essex harvest cart, seed barrow-drill, stack staddle, &c.

Dray and Co. showed their Champion reaper, and their mowing-machine, which had been at work at Sir John Tyrrel's.

Smyth and Son their well-known corn and seed drills.

Haigh, washing and mangling machines.

Woods and Son, of Stowmarket—poppy extirpator, mills, crushers, cart with removable iron boxes in the naves, and a complicated reaping-machine, to take the same breadth of work as Burgess and Key's, but of smaller size, weighing 8 cwt., endless bands across a platform for the side delivery, and straps and riggers instead of gear-work for actuating the cutters, &c.

Goss and Peene—ploughs, scarifiers, horse-rakes, chaff-cutters, root-graters, &c.

Turner—mincing-machines, washing-machines, fruit-parers, kidney-bean slicer, knife-cleaner, &c.

Simpson—"Mechian" harvest carts.

Grove.—Specimens of agricultural roots.

Thorley's and Henri's cattle-foods also occupied stalls.

To keep in remembrance the steam-ploughing of 1856, Burgess and Key's reaping-machine was also at work in another direction from the show-yard. Again, Eddington's steam-ploughing and draining with Fowler's implements and anchorage, and a novel form of windlass, in which a portable engine is run up on to the top of the frame containing the winding-drums and gear-work, were in operation in a field on the Broomfield road. The ploughing with Fowler's four-furrow balance plough, to one of Clayton and Shuttleworth's eight-horse engines on the windlass, was well performed; although one part of the land was a very deep hollow.

PRIZES FOR STOCK, &c.

HORSES FOR AGRICULTURAL PURPOSES.

JUDGES.—S. Jonas, Chrishall Grange, Saffron Walden.
W. C. Spooner, Eling, Southampton.

The best Stallion.

First prize of £15 and the special prize of £25, open to all England, G. D. Badham, the Sparrows' Nest, Ipswich (The Emperor).

Second, of £8, George Carter, Danbury.

Highly commended.—George Hare, Holbrook, Thos. Crisp, Butley Abbey, and George Slater, for Suffolk stallions,

Commended.—George Rust jun.'s stallion.

Best Two-years-old Entire Colt,

First prize of £10, G. D. Badham.

Second of £5, Wm. Bott, jun, Broomfield.

Highly commended.—W. H. Walker's colt.

Best Mare, with Foal at foot.

First prize of £6, John Ward, East Mersea (Moggy).

Second of £3, John Ward.

Highly commended. — W. Livermore, Elsenham, for his mare.

Commended.—G. Slater, Saffron Walden, and Wm. Belcher, Sandon.

Best Three-years-old Filly.

First prize of £5, G. D. Badham.

Second of £3, George Carter.

Highly commended.—J. Ward, East Mersea.

Commended.—George Hart, North Weald.

Best Two-years-old Filly.

First prize of £5, G. Carter, Stowmaries.

Second of £3, G. Carter, Danbury.

Commended.—T. W. Bramston, M.P.

Best Foal.

First prize of £5, J. Ward.

Second of £3, Wm. Belcher, Sandon.

Commended.—J. Ward, G. Slater, O. Hanbury, and Geo. Cousins, Wood's Langdon.—[Most of the foals were shown with the mares in Class 5.)

The best Pair of Plough Horses or Mares regularly used on a Farm, and bred by the Owner.

Prize of £5, G. D. Badham.

Highly commended.—Wm. Simmonds, Danbury, and O. Hanbury.—[This class was generally commended.]

RIDING AND COACHING HORSES.

JUDGES.—Capt. Barlow, Hasketon, Woodbridge.
C. Barnett, Stratton Park, Biggleswade.

Best thorough-bred Entire Horse.

£20.—*(Prize withheld).*

Best weight-carrying Hunting Mare, that has been regularly hunted during the past season in Essex.

£5, J. T. Hallam, Wormingford.

The best weight carrying Gelding.

£5, W. P. Honeywood, Marks Hall.

Best Hackney Mare.

£5, Joseph F. Hutley, Braxted.

Highly commended. — Decimus Winstanley, for hackney mare or hunter.

Commended.—Edward Emson, Littlebury, hackney mare; Richard Bunter, hackney mare.

Best Hackney Gelding.

£5; Simon Viall, Birdbrook.

Best Brood Mare, with Foal at foot.

£5; Charles Squier, Thorndon, hackney and carriage mare.

CATTLE.

JUDGES: H. Cooke, Camden Town, London.
J. Spurling, Shotley, Ipswich.

Best pure bred Shorthorn Bull.

First prize of £10, T. W. Bramston, M.P. (Duke of Cambridge).

Second of £5, W. Fisher Hobbs, Boxted (Augustus).

Best Bull of any other pure breed.

£5; W. Fisher Hobbs, for his Hereford bull (Salisbury).

Best two-years-old pure bred Shorthorn Bull.

First prize of £5, Robert Baker, Writtle (Congress).

Second of £3, W. T. Longbourne, Ditchley, Brentwood.

Best two-years-old Bull of any other pure breed.

£4; W. Fisher Hobbs.

Best Yearling pure Shorthorn Bull.

First prize of £5, James Upson, Rivenhall (Hastings).

Second of £3, James Christy, jun.

Highly commended.—Charles Sturgeon, for a young shorthorn bull (Steaton).

Best Yearling pure bred Bull of any other breed.

W. Fisher Hobbs (Alderney).

Best pure bred Shorthorn Cow.

First prize of £5, T. W. Bramston, M.P. (Princess Alice).

Second of £3, Charles Barnard, Harlow (Flirt).

Highly commended.—R. B. Wingfield, M.P., for shorthorn cow in calf.

Best Cow of any other pure breed.

£4, W. Fisher Hobbs, Hereford cow (Young Golden Drop).

Best pure bred Shorthorn two-years-old Heifer.

First prize of £5, T. W. Bramston, M.P. (Duchess of Cambridge).

Second of £3, W. T. Longbourne.

Best two-years-old Heifer of any other pure breed.

£5, W. F. Hobbs, Alderney heifer (Beauty).

Best pure bred Shorthorn Yearling.

First prize of £5, T. W. Bramston, M.P. (Velvet).

Second of £3, George Hare.

Highly commended.—John Gosling, Bocking, for yearling.

Best Yearling of any other pure breed.

£4, Joseph Hutley.

Best fat Ox or Steer, not exceeding three years old.

First prize of £5, W. Fisher Hobbs.

Second of £3, W. I. Hurrell, Boreham.

Best fat Cow or Heifer.

First prize of £3, W. F. Hobbs.

Second of £2, Chas. Barnard, Harlow.

Best Cow or Heifer for dairy purposes.

First prize of £3, James Upson, shorthorn (Lofty).

Second of £2, James Christy, jun.

Highly commended.—Charles Barnard (Fairy).

Commended.—Charles Barnard (Maria).

Best pure bred Shorthorn Heifer, not exceeding 12 months old, and not under 6 months.

£2, B. B. Colvin, Pishiobury (Sensible).

Highly commended.—B. B. Colvin (Milkmaid).

Commended.—Robt. Baker, for heifer.

Special prize of £15, for the best Bull of any age, of a pure breed, open to all England.

Jonas Webb, Babraham, for shorthorn bull (Young Holland.)

SHEEP.

JUDGES—T. Hawkins, Smallbridge, Bures St. Mary.
H. Woods, Merton, Thetford.

The best Southdown Ram, any age.

First prize of 5*l.* to T. W. Bramston, M.P.

Second of 2*l.* to J. G. Rebow, M.P., Wivenhoe.

Best Ram of any other short-woolled breed.

No prizes awarded.

Best Long-woolled Ram of any age.

First prize of 5*l.* to John Hine, Epping. (Leiscester.)

Second of 2*l.* to J. Gosling, Bocking. (Cotswold.)

Best Southdown Shearling Ram.

First prize of 5*l.* to W. T. Longbourne.

Second of 2*l.* to W. T. Longbourne.

Best Shearling Short-woolled Ram.—*(No entry).*

Best Shearling Long-woolled Ram.

First prize of 5*l.* to Alfred Tuck, Ingatestone.

Second prize—*(not awarded.)*

Best pen of five Shearling pure Down Ewes.

First prize of 5*l.* to W. T. Longbourne.

Second of 2*l.* to W. T. Longbourne.

Best pen of five Shearling Short-woolled Ewes.

Prize of 5*l.* to Col. Ruggles Brise. (West country down.)

Best pen of five Ewes of any kind, with Lambs.

First prize of 5*l.* to J. Gurdon Rebow, M.P. (Southdown.)

Second of 2*l.* to Thomas Crooks. (Down.)

Best pen of five fat Shearling South-woolled Wethers.

First prize of 3*l.* to W. T. Longbourne.

Second of 2*l.* to Simon Q. Viall.

Commended—T. Richard Chaplin. (Hampshire Down.)

Best pen of five fat Shearling Long-woolled Wethers.

First prize of 3*l.* to Simon Q. Viall.

Second of 2*l.* to Henry Holmes, Bocking.

Special prize of 10*l.* for the best Ram of any age of a pure breed; open to all England.

The prize to G. Mumford Sexton, Cockfield, Sudbury, for Cotswold ram.

PIGS.

JUDGES—T. Hawkins, Smallbridge, Suffolk.
H. Woods, Merton, Norfolk.

The best Boar.

First prize of 5*l.* to W. F. Hobbs. (Improved Essex.)

Second of 2*l.* to W. F. Hobbs. (Do.)

Commended—W. F. Hobbs. (Do.)

Best Boar not exceeding twelve months.

First prize of 4*l.* to W. F. Hobbs.

Second of 2*l.* to Robert Baker. (Improved white.)

Highly commended—W. F. Hobbs.

Best Sow in Pig.

First prize of 4*l.* to T. W. Bramston, M.P. (Improved Berkshire.)

Second of 2*l.* to Lady Pigot. (White.)

Highly commended—Robert Baker. (Black.)

The best Sow with her Pigs.

First prize 4*l.*; second 2*l.*—(*No prizes awarded.)*

Best pen of three Sow Pigs of same litter, under nine months old.

First prize of 4*l.* to John Clayden, Littlebury.

Second prize—(*not awarded.)*

EXTRA STOCK.

Highly commended—A sow, the property of Mr. Quihampton. *Commended*—Three sows of Mr. Quihampton.

WOOL.

JUDGE—Mr. Johns, Chelmsford.

Best ten Fleeces of Short Wool.

First prize of 2*l.* to C. T. Tower, Weald Hall.

Second of 1*l.* to J. G. Rebow, M.P.

Best ten Fleeces of Long Wool.—(*No prize given.*)

PRIZES FOR IMPLEMENTS.

JUDGES—J. A. Clarke, Long Sutton, Wisbeach.
T. Hawkins, Smallbridge, Suffolk,

Best General Collection of Implements.

First prize of 20*l.* to Coleman, Chelmsford

Second of 10*l.* to Bentall, Heybridge, Maldon.

Third of 5*l.* to Everett and Taylor, Chelmsford.

For best new or improved Implement.—(*None exhibited of sufficient merit.*)

Mr. **Bailey**, of Mount-street, London, was the Judge of Poultry.

THE DINNER

Took place in the New Market Hall, at five o'clock, just an hour or so too late for those who had to return by train. Seats had been prepared for somewhere about two hundred and fifty, but an extra table had at last to be laid out, and provision for it obtained from the not over sumptuous board already arranged. Mr. Du Cane, M.P., presided, supported right and left by Lord Rayleigh, Major Beresford, M.P., Col. Brise, the reverend John Cox, Messrs. J. G. Rebow, Perry Watlington, J. J. Mechi, J. Parker, J. O. Parker, W. P. Honeywood, Burch Western, W. Fisher Hobbs, R. Baker, J. Clayden, and other notabilities of the county. There were also present the Rev. C. T. James and Messrs. C. Barnett, S. Jonas, W. C. Spooner, T. B. Gibbs, J. Tanner Davy, Henry Cook, J. Algernon Clarke, G. D. Badham, and J. Spurling.

After the customary loyal and patriotic toasts had been duly given and enthusiastically received,

The **Chairman** in proposing the toast of the evening, "Success and Prosperity to our new-born Essex Agricultural Association, said: When I look around these tables, and see gathered together on this occasion men who, by their practical skill and their high intelligence, have contributed in no small measure to raise the agriculture of England to that proud pre-eminence it now enjoys, I have no doubt whatever of the reception you will accord to it. It will hardly be within my province on the present occasion to dwell at any length upon the circumstances that have led to the formation of this association; they are doubtless, for the most part, fresh in your recollection; but I may, perhaps, be permitted to point out to you that this society owes its foundation, not merely to that national interest that we all—who view in the prosperity and well-doing of the agriculture of our country the truest foundation of national greatness—feel in whatever tends to further the great cause of agricultural improvement and develop the productive resources of the soil, but it has emanated also from a special, I might also say a noble, effort made by the county of Essex and the town of Chelmsford to secure for us that which is one of the highest of agricultural benefits, as it is one of the highest of agricultural distinctions, the annual meeting of the Royal Agricultural Society of England. I take it we may fairly say that to the good seed sown by that memorable meeting we owe the inauguration of the present association; and I think we may also fairly say that, considering the short time our seed has been in the ground, and the somewhat early period we have fixed on for the in-gathering of our harvest, we have reaped, upon the whole, a crop that is far beyond the average. Gentlemen, we know very well, from past experience, that the successful establishment of an association of any kind is not always an easy matter: there are always opponents of various kinds, to be won over as allies or reduced to submission. There is the cautious man, who waits to see how the thing will work before he tenders you his allegiance; there is the desponding individual, who has gloomy tales of past ill success, from which he augurs badly of the future; and last, not least, there is the plain-spoken honest opponent, who tells you frankly and flatly that he thinks both you and your prospects are all a humbug, and that if you think to catch him in your net you are very much mistaken. Now, gentlemen, in the very small part that I individually have borne in the formation of this association, I will not pretend to say that I have not encountered an isolated instance or so of these three species of opponents, but I can say that these instances have been indeed few and far between; and I can say, too, and it is with a feeling of pride in my county that I say it, that never did any proposal meet with a more hearty, or more cordial, or more unanimous response than this has done at the hands of the good farmers of Essex. And, gentlemen, I should have been surprised if it had not been so: agricultural times have changed of late years in England, and they have changed, too, in Essex. It is no great effort of memory to carry our recollections back to the time when, some few years since, an individual whom I may style the knight-errant of the monarch of the press, rode through the length and breadth of England, calling upon the farmers of England to "Awake, arise, or be for ever fallen." We remember how, in the course of his career, he halted for a brief space to survey the broad acres of Essex, and the not very complimentary language in which he spoke of Essex farmers and Essex farming. We remember how, in spite of its proximity to the great metropolis, this county was said to be in a state of Cimmerian agricultural darkness—how Essex landlords were said to be devoid of capital, and Essex farmers to be devoid of brains. We remember how we were told that our fields averaged about an acre a-piece in size; how they swarmed with injurious hedgerow timber; how the use of a draining-tile was unknown; how mistrust was universally shown of recent improvements in machinery, and a general want of confidence in everybody and everything. We remember all this—and saddest of all, I am afraid, we must remember too that this flattering picture was not altogether too highly coloured. But, gentlemen, I say, let the same knight-errant come now, and he will say, if he be honest, that a "change has come o'er the spirit of our dream." Let him come, I say, and he will see that good farming is now the rule, and bad farming the exception; he will see an earnest desire, both on the part of landlords and of tenants, not only to avail themselves of every acknowledged agricultural improvement, but to test the value of new discoveries by fair and impartial experiment and investigation. He will find that landlords have somehow or another obtained possession of capital, and tenants of brains; and, co-existing with a kindly feeling to each other, he will find an earnest desire on the part of both to study the welfare and ameliorate the condition of the labouring classes dependent on them for employment. I do not mean to say we have yet nearly approached to perfection, for I believe that the age of agricultural improvement is as yet but in its infancy, and that great discoveries are yet in store for us. I believe that ere many years have elapsed we shall witness an application of steam power to the cultivation of the soil to an extent that but a few years since would have been looked upon as the chimerical vision of a lunatic; we shall witness further developments in the science of agricultural chemistry, improvements in the breeding and rearing of stock, the art of draining, and other branches of agriculture. And, gentlemen, it is to assist in this good cause—it is to give, if possible, a finishing touch to these discoveries—that I imagine we have this day assembled to commemorate the inauguration of the Essex Agricultural Association. I will not enter myself into the particular merits of this day's exhibition. There are subsequent speakers who have to address you, men who are what I am not—agriculturists of great practical skill and eminence—who will point out to you its merits and demerits, and who will tell you something of the errors of our ways of Essex farming in general; but this much I will venture to say—that, considering the time we have had for preparation, wonders have been accomplished, and an exhibition has been held in every way worthy of this great agricultural county. I give you, then, "Success to the Essex Agricultural Association," and I venture to recommend it, in conclusion, to your support in the words of a recent able writer on English agriculture—"The wave of agricultural progress has acquired irresistible might: we must mount it, or it will sweep us away. He who lives within the diameter of a little circle has ideas as narrow as his horizon; but the influence of numbers and skill together is irresistible, and no impersonation of ignorance or bigotry has probably ever visited a single great agricultural exhibition without returning a wiser and a better farmer" (Great applause).

Major **Beresford** gave "The Judges;" and Mr. **Barnett** in responding said, in one class upon which himself and Capt. Barlow were appointed to adjudicate they did not give a prize; and if he were not to allude to the circumstance, and state why they did not, he might go away under the imputation of not having done his duty, and possibly of being a coward. The second article of their bye-laws was to the effect that "the judges would be instructed not to award prizes in classes where the animals exhibited did not possess sufficient merit." Doubtless there were in the class referred to animals which in their eyes possessed some merit; but the judges were placed in a very oncrous position when they considered that they were adjudicating upon animals which were to produce stock not only in this county, but in England generally; for he must say, as a breeder of stock, that unless they bred from animals perfectly sound and free from blemish, they could never arrive at perfection.

Mr. SAMUEL JONAS being called for, also replied to this toast.

Lord RAYLEIGH gave the health of "The Chairman;" becomingly acknowledged. Mr. WESTERN followed with "The Vice-Presidents and Committee." Introducing this he said, it had been asked, with all the intelligence, ability, and capital invested in the cultivation of the soil in Essex, and with similar societies existing in neighbouring counties, why this county had so long been without one, and why they had met that day for the first time as members of an Essex Agricultural Society? Probably many reasons might be given for this, and he was not at all sure that he had hit upon the right one, but it might possibly have arisen from the circumstance that they had not in Essex any particular breed of stock identified with the county. Suffolk was celebrated for its horses, and other counties for particular breeds of cattle or sheep; but with the exception of the improved Essex breed of pigs—to which he meant no disparagement—Essex was not celebrated as a stock-breeding county; and therefore it was that the agriculturists of Essex had occupied themselves more particularly in the cultivation of the soil, and more especially in the growing of corn crops, for which there was no doubt they were highly celebrated. The society whose establishment they that day commemorated might be looked upon as an off-shoot of that great national society which was so useful in showing counties what their wants were in respect to agriculture, and which held its meeting in this town two years ago. It was that circumstance which turned the minds of the landowners and farmers of Essex to this particular subject; and although, as he had said, their county was not celebrated for any particular kind of stock, he had no doubt the establishment of this society would stimulate them to show what might be accomplished by perseverance even under circumstances less favourable than those of other parts of the country.

Mr. FISHER HOBBS replied. They had inaugurated that day the establishment of a society of which every Essex man might be proud. The success of that inauguration had surpassed the expectations of the committee, and had proved what the county of Essex was able to do, not only in the cultivation of the soil, but in the rearing and breeding of stock; for although, as had been said, they were not thorough breeders of stock, and although this climate and soil were not so propitious as some other localities, they had had ample proofs of what perseverance could do; for he did not hesitate to say that there were in the show-yard that day animals as well bred as any stock in the kingdom; and he would further assert that no county society could bring together a better exhibition than they had witnessed that day. They had had a good beginning; they did not mean to be contented with an exhibition of stock, but should endeavour gradually to embrace every branch of agriculture.

The other toasts included "The Stewards," proposed by Mr. Perry Watlington, and answered by Mr. Oxley Parker; "The successful Candidates," in replying to which

Mr. HONYWOOD said, it must be admitted that in breeding horses Essex was wofully deficient compared with other counties; but he had nevertheless felt it to be his duty to send as many as he could.

Mr. Alderman MECHI hoped nothing ironical was intended in allotting to him the duty of proposing the health of the unsuccessful candidates (laughter). To his mind they owed a debt of gratitude to those gentlemen, because, if there had not been unsuccessful candidates, and if no inferior animals had been exhibited, they could not have so fully appreciated the merits of those which were successful. To pass at once to the subject of that day's show. It had been said that Essex was not famous for any particular breed of stock—though by the way he had always understood that it was celebrated for Essex calves (laughter)—but if nature had not blessed them with those light and sandy soils which were so favourable for the production of good stock, they had had abundant proof that day that by means of oil-cake, covered buildings, &c., they were able to produce a highly respectable show (cheers). He congratulated them upon the progress agriculture had made during the last few years: he wished they could say they had arrived at perfection; but he had been struck to-day with the fact that while everybody was running after the reaping-machine—which was thought nothing of a few years ago, but which was certainly no longer a novelty—nobody went to see the steam-plough, which was one of the new elements in agricultural operations, and was destined to produce the most important results in the cultivation of the soil.

Lord RAYLEIGH replied as an unsuccessful exhibiter, his Lordship having previously taken the place of Mr. Du Cane, who had been compelled to leave.

"The Ladies" came as the concluding toast, many of the company having previously retired.

NORFOLK AGRICULTURAL SOCIETY.

MEETING AT NORWICH.

On Friday, the 18th of last month, the Norfolk Agricultural Society once more brought its annual exhibition to Norwich. The meeting was held under somewhat exceptional circumstances — the all-absorbing topic in Norfolk just now being not farming, but the impending election struggle between Sir Henry Stracey and the Hon. Major Coke. Politics always exercise an under-current influence in English affairs, but especially among farmers on the eve of a contested county election. No wonder, then, that conversation, on Friday, was frequently turned from the merits of this or that implement, or the points of this or that animal, to the for the time absorbing topic of Stracey *v.* Coke. In another respect, however, the meeting profited greatly. The intensely hot weather of the last few days was brought to a sudden check on Thursday, with heavy showers, which cooled the parched earth, and enabled exhausted nature—human, animal, and vegetable—to exhibit symptoms of returning vigour. On Friday, the favourable change continued, and the state of the elements left little or nothing to be desired; so that the visitors to the exhibition, who numbered about 1,500, were enabled to perambulate the show-yard with unlooked-for comfort. The site, which was the spot usually selected by the Society for its Norwich meetings, is known as the "cricket-ground," and is well calculated for an agricultural show, as it is within tolerably easy distance of the city, and has sufficiently rural accessories to render it in keeping with such an exhibition.

The stock and implements occupied three sides of the field, and the sheep and pigs, which did not take up much room, were accommodated in the centre. The show of cattle, which was about an average for a Norfolk show, was far from excessive, the total number of entries being about 70. In Classes I. and II., Shorthorn Bulls, there were 14 animals exhibited. No. 7, shown by Mr. R. Gilbert, was a fine bull, with good loins, and fore quarters. No. 9, which received the first prize, and was shown by Mr. N. G. Barthropp, was also a good animal. No. 12, shown by Lord Walsingham, had superior hind quarters, and was good in his chine, but heavy about the shoulder. No. 8, shown Mr. W. Birch, was a good animal, but rather defective in his hind legs. In Class III., Devon Bulls, No. 16, exhibited by Mr. J. Overman, had fine loins, rump, and head; being on the whole a first-class animal. In Class V. and VI., Polled Bulls, the most noticeable animal was particularly sharp in the rump. Among the Shorthorn Cows, No. 24, shown by Lord Walsingham, was particularly good, deep in her chest, with her shoulders well covered. No. 32, exhibited by Lord Walsingham, was also a good animal. No. 23, shown by Mr. S. Gooch, was favourably regarded. In Class IX., Devon Cows, the Earl of Leicester carried, as usual, all before him. No. 34, exhibited by his Lordship—who was the sole competitor in this Class—was a fine cow, with good head, rump, and loin, and resembling the prize steer shown by the same nobleman at Birmingham. In Classes XI. and XII., Polled Cows, No. 37, shown by Lord Sondes, was particularly good in the rump, as though she had been crossed with the Devon breed. No. 44, shown by Lord Walsingham, was a fair heifer. In Classes XVII. and XVIII., No. 51, exhibited by Mr. J. Blomfield, was a beautiful animal, with plenty of beef in the most valuable parts. No. 53, a yearling Devon Heifer, shown by the Earl of Leicester, was also good. The Class of Fat Steers attracted a good deal of attention, especially Nos. 64 and 68; the former shown by Mr. R. Wortley, and the latter by the Rev. J. Holmes. The age of the first was three years and six months, that of the other two years and seven months. The judges experienced some little difficulty in making their award, but it was given in favour of the older animal, as it was considered that the younger would not be so good when it had attained a similar age. Among the extra stock a roan shorthorn bull was commended, and presented several good points. The show of sheep, as before hinted, was limited; in fact, there was a considerable diminution as compared with last year, the entries being 72 this year, and 113 at the meeting at Swaffham twelve months since. If one were disposed to cast about for an explanation of this falling-off, it might possibly be found in the monopoly which Lord Walsingham, Lord Leicester, and Lord Sondes enjoy in regard to the prizes for Southdowns. Thus in the seven Southdown classes there were only five district competitors, the changes being pleasantly rung on Lord Walsingham, Lord Sondes, and Lord Leicester. It should not, however, be attempted to be insinuated that these noblemen do not deserve the pre-eminence which the well-directed energy of their agents has secured for them. Lord Walsingham's rams were much admired, and it was stated that two of his lordship's best shearling and two of his two-year old rams were kept back for exhibition at the approaching Chester meeting. In the Leicesters there was not much more competition, but some fine animals were penned. It was on the whole, however, matter for regret to see so insignificant a show in this department, especially to those accustomed to witness the splendid supply of mutton generally exhibited on Saturdays on Norwich hill. The pigs occupied very little space, and were confined to five classes, in one of which no award was made. There were, however, four entries more than at the last meeting, and eleven competitors presented themselves. The show of horses was tolerably good, although the number entered at the meetings of the Society bears no comparison with the entries made under this head at the Suffolk exhibitions. Mr. G. D. Badham, of Sparrow's Nest, near Ipswich, carried away the first prize for cart stallions over four years old; and Mr. T. Crisp, another Suffolk exhibitor, bore away the first prize for three-year-olds. In the next class, two-year-olds, the same gentlemen were also successful, so that Suffolk again asserted her superiority in this department, in which some very powerful and beautiful animals were entered for competition. Mr. H. K. Tompson, of Witchingham, offered a new prize of £6 for the best horse not exceeding six years' old, calculated from shape and breeding to make a heavy-weight hunter. There were five competitors and six entries, including some likely animals. The fillies and foals were up to the standard of previous years.

With regard to implements there is not much to be said, the entries having been principally confined to local makers, while the novelties were not very numerous. Messrs. Clayton and Shuttleworth, Hornsby, Barrett, Exall, and Andrews, Crosskill, and other leading firms did not put in an appearance. Messrs. Ransome and Sims only exhibited a haymaking machine; and Messrs. Garratt and Sons did not enter for premiums. A new steam-plough, exhibited by Messrs. Holmes and Sons, of Norwich, attracted some attention. Messrs. Holmes, without adopting the endless railway apparatus of Mr. Boydell, obtain a progressive motion in any direction, by means of a kind of toothed wheel falling into a series of holes punched in the outer wheels. The engine exhibited was of small power (about two-horse); but it made a tolerable progress over the ground, and the turning apparatus was effective. The ploughs are placed underneath, and were not, actually, employed. How the engine would have acted when really at work, and turning a furrow, was a matter of doubt with some of the bystanders; and an increase of power would probably be necessary to effectively overcome the increased resistance. The working of the engine, and of one or two other small ones, which were in motion in the yard, suggested the idea that it is not desirable to adopt a very limited form of construction, as the shaking and "racket" (and consequent wear and tear), from the want of adequate solidity and resistance, is far greater, proportionately, with apparatus of two or three-horse power, than with a greater calibre. A trial of Burgess and Key's reaper was announced to take place in the course of the day, at a farm at some little distance from the exhibition, which comprised six or seven portable engines, and the usual supply of root-pulpers, bean-splitters, turnip-cutters, circular saws, washing machines, haymakers, *et id genus omne.*

With these observations, the prize-list may be left to speak for itself, as it enters copiously into details:—

PRIZES FOR STOCK.

CATTLE.

JUDGES—Capt. J. T. Davy, Rose Ash, South Moulton, Devon.
J. Thompson, Badminton, Gloucestershire.

SHORTHORN BULLS.

First prize of £7, and the Society's silver medal, to Mr. N. G. Barthropp, Cretingham, Suffolk,

Second prize of 4 sovs. to Lord Walsingham.

Commended, Mr. R. Gilbert's; and Mr. W. Birch's.

Devon Bulls.

First prize of 7 sovs. to Mr. J. Overman.

Second prize not awarded, there not being four exhibitors.

Commended, the Earl of Leicester's.

Polled Bulls.

First prize of 7 sovs. to Lord Sondes.

Second prize not awarded, there not being four exhibitors.

Shorthorn Cows, in-calf or in-milk.

First prize of 5 sovs. and the Society's silver medal to Lord Walsingham.

Second of 3 sovs. to Lord Walsingham.

Devon Cows in-calf or in-milk.

First prize of 5 sovs. (offered by Mr. A. Hamond) and the Society's silver medal to the Earl of Leicester.

Polled Cows, in-calf or in-milk.

First prize of 5 sovs. to Lord Sondes.

Second of 3 sovs. to Mr. T. M. Hudson.

Cows of any breed (not Shorthorn, Devon, or Polled) for Milking Purposes.

Prize of 3 sovs. to Mr. S. Gooch.

Shorthorn in-calf Heifers.

First prize of 5 sovs. (offered by Mr. W. Bagge) and the Society's silver medal to Lord Walsingham.

Second prize of 3 sovs. not awarded.

Yearling Shorthorn Heifers.

Prize of 2 sovs. to Lady Pigot, Chippenham, Wilts.

Devon in-calf Heifers.

First prize of 5 sovs. and the Society's silver medal to Mr. J. Bloomfield.

Second prize of 3 sovs. not awarded.

Yearling Devon Heifers.

Prize of 2 sovs. to the Earl of Leicester.

Polled in-calf Heifers.

First prize of 5 sovs. and the Society's silver medal to Lord Sondes.

Second prize of 3 sovs. not awarded.

Yearling Polled Heifers.

Prize of 2 sovs. to Lord Sondes.

Fat Steers of any breed, under four years old.

First prize of 5 sovs. and the Society's silver medal to Mr. R. Wortley.

Second prize of 3 sovs. to the Rev. J. Holmes.

Fat Cows or Heifers.

First prize of 4 sovs. to Mr. S. Gooch.

Second of 2 sovs. to Mr. S. Gooch.

EXTRA STOCK.

Commended, a roan yearling bull.

[With reference to the cases in which no awards of second prizes were made, it is desirable to give the following extract from the instructions to the judges of cattle:—"If there be not at least four animals exhibited in a class, no second prize is to be awarded, unless the judges think it right to award such second premium on the ground of special merit, but such second premium is in that case not to be awarded to the exhibitor receiving the first prize."]

SHEEP.

JUDGES.—For Southdowns:
J. Moon, Hurstbourne Priors, Hants.
E Pope, Great Toller, Dorsetshire.
For Long-woolled and Half-bred:
T. Carpenter, Clifford, Stratford-on-Avon.
W. Slatter, Stratton, Cirencester.

Southdown Shearling Rams.

First prize of 6 sovs. to Lord Walsingham.

Second prize of 4 sovs. to Lord Walsingham.

Southdown Rams, of any age.

First prize of 5 sovs. (offered by Mr. H. S. Le Strange) and the Society's silver medal to Lord Walsingham.

Second prize of 3 sovs. to Lord Walsingham.

Southdown Shearling Ewes.

First prize of 5 sovs. and the Society's silver medal to Mr. J. B. Aylmer.

Second prize of 3 sovs. not awarded, as there were only two entries.

Southdown Ewe Lambs.

First prize of 4 sovs. and the Society's silver medal to Lord Sondes.

Second prize of 3 sovs. to Mr. J. B. Aylmer.

Southdown Shearling Wethers.

First prize of 5 sovs. and the Society's silver medal to Lord Walsingham.

Second prize of 3 sovs. to Lord Walsingham.

Southdown Wether Lambs.

First prize of 5 sovs. (offered by Sir W. Ffolkes) and the Society's medal to Lord Sondes.

Second prize of 3 sovs. not awarded, as there were only two entries.

Southdown Shearling Ewes.

First prize of 5 sovs. (offered by the Earl of Leicester) and the Society's silver medal to Lord Sondes.

Second prize of 4 sovs. to the Earl of Leicester.

Third prize of 3 sovs. not awarded, as there were only three entries.

Leicester or Long-woolled Shearling Rams.

First prize of 6 sovs. and the Society's silver medal to Mr. T. Brown (Marham).

Second prize of 4 sovs. to Mr. G. M. Sexton.

Leicester or Long-woolled Rams, of any age.

First prize of 5 sovs. and the Society's silver medal to Mr. G. M. Sexton.

Second prize of 3 sovs. to Mr. J. Overman.

Commended, Mr. J. Overman's.

Shearling Leicester or Long-woolled Ewes.

First prize of 5 sovs. and the Society's silver medal to Mr. T. Brown.

Second prize of £3, to Mr. T. Brown.

Wether Lambs of any breed.

First prize of £5, and the Society's Silver Medal, to Mr. W. Groom.

Second prize of £3, to Mr. J. L. Barrat.

Shearling Wethers of any breed (except Southdown.)

First prize of £5, and the Society's Silver Medal, to Mr. J. Overman.

Second prize of £3, to Mr. J. Overman.

Ewes of any age or breed, from a flock of not less than five score Ewes, and having brought up a Lamb or Lambs to within three weeks of the day of Exhibition.

Prize of 5*l.*, (offered by Lord Sondes), and the Society's Silver Medal, to the Earl of Leicester.

HORSES.

JUDGES:—W. C. Spooner, Eling, Southampton.
J. Clayden, Littlebury, Essex.

Cart Stallions not under Four Years Old.

First prize of 10*l.*, and the Society's Silver Medal, Mr. G. D. Badham, Sparrow's Nest, Ipswich.

Second prize of 7*l.*, to Mr. R. Pratt.

Third prize of 5*l.*, to Mr. T. W. Read.

Three Year Old Cart Stallions.

First prize of 8*l.*, to Mr. T. Crisp, Butley Abbey, Suffolk.

Second prize of 4*l.*, to Mr. W. Wilson.

Commended, No. 156, Mr. H. K. Tompson.

Two Year Old Cart Stallions.

First prize of 6*l.*, to Mr. T. Crisp.

Second prize of 3*l.*, to Mr. G. D. Badham.

Highly Commended, Mr. T. Crisp.

Thorough-bred Stallions.

Prize of 7*l.*; no award, the Judges not thinking the animals exhibited were of sufficient merit.

Stallions for Saddle or Harness.

Prize of 7*l.*, and the Society's Silver Medal, to Mr. T. Austin.

Second prize of 4*l.*, to Mr. N. Drane.

Highly Commended, Mr. F. Gardner's.

Commended, Mr. F. Gardner's.

Hackney Mares or Geldings above Five Years Old, above 14 and not exceeding 15½ Hands High.

Prize of 10*l.*, (offered by the Earl of Leicester), to Mr. M. Cooper.

Highly Commended, Mr. W. Rose's.

Commended, Mr. J. A. Storey's.

Mares or Geldings for Saddle or Harness, under Five Years Old.

First prize of 5*l.*, to Mr. F. Barlow.

Second prize of 2*l.*, to Mr. F. Barlow.

Commended, Mr. W. Roses.

Brood Mares for Saddle or Harness.

Prize of 5*l.*, (offered by Mr. J. H. Gurney, M.P.), to Mr. W. P. Salter, jun.

Heavy-weight Hunters not exceeding Six Years Old.

Prize of 6*l.*, (offered by Mr. H. K. Tompson), to Mr. E. A. Applewhaite.

Cart Mares.

Prize of 5*l.*, (offered by Mr. G. P. Bentinck, M.P.), and the Society's premium of 2*l.*, to Mr. G. D. Badham.

Second prize of 5*l.*, to Mr. T. Crisp.

Third prize of 3*l.*, to Mr. S. Wolton, jun.

Three-year-Old Cart Fillies.

First prize of 6*l.*, and the Society's Silver Medal, to Mr. S. Wolton, jun.

Second prize of 3*l.*, to the Rev. J. Holmes.

Two-year-Old Cart Fillies.

First prize of 5 sovs. to Mr. T. Crisp.

Second of 2 sovs. to Mr. P. Rose.

CART FOALS.

First prize of 4 sovs. to Mr. J. Smith.

Second of 2 sovs. to Mr. T. Crisp.

Highly commended, Mr. S. K. Gayford's.

Commended, Mr. S. Wolton's.

Ponies not under 12 nor above 14 hands high.

Prize of 5 sovs. (offered by Lord Stafford) to Mr. F. Barlow

Highly commended, Mr. G. Nicholson's.

Commended, Mr. W. Heath's.

SWINE.

JUDGES—T. Carpenter, Clifford, Stratford-on-Avon.
W. Slatter, Stratton, Cirencester.

Boars of Large Breed.

First prize of 4 sovs. and the society's silver medal to Mr. T. Crisp.

Second of 2 sovs. to Mr. J. H. Gurney, M.P.

Breeding Sows of Large Breed.

No award, in consequence of the animal shown not being considered by the judges of the large breed.

Boars of Small Breed.

First prize of 4 sovs. and the society's silver medal to Mr. T. Crisp.

Second of 2 sovs. to Mr. M. Biddell.

Highly commended, Mr. T. Crisp's.

Breeding Sows of Small Breed.

First prize of 4 sovs. and the society's silver medal to Mr. T. Crisp.

Second of 2 sovs. to Mr. T. Crisp.

Highly commended, Mr. M. Biddell's.

Commended, Mr. M. Biddell's.

IMPLEMENTS.

JUDGES—T. Crisp, Butley Abbey, Suffolk.
G. Gayford, Rymer House, Burnham, Suffolk.

Collections of Agricultural Implements.

To the exhibitor of the best collection of implements for the purpose of agriculture, the society's premium of 6 sovs., Messrs. Holmes, Norwich.

To the exhibitor of the second-best, the society's premium of 4 sovs., Mr. E. H. Bentall, Heybridge, Essex.

To the exhibitor of the third-best, the society's premium of 2 sovs., Mr. James Woods, Stowmarket.

Silver medals were awarded to Messrs. Barnard and Bishop, Norwich, for an improved turnip cutter; Mr. R. Coleman, Chelmsford, for a cultivator; Messrs. E. R. and F. Turner, Ipswich, for an oil-cake breaker; Mr. J. Sainty, Burnham, for wrought-iron sheep troughs.

The judges *highly commended* a barley aveller, with screen, by Mr. James Campling, Norwich; a wrought-iron water winch, by Mr. Cubitt, North Walsham; a portable sawing mill, by Messrs. Holmes, Norwich; a lever corn drill, by Messrs. Smyth and Sons, Peasenhall, Suffolk; and a haymaking machine, by Messrs. Ransomes and Sims, Ipswich.

THE DINNER

Took place at the Royal Hotel, and was served with much taste and comfort. The Marquis Townshend, the President of the Society for the year, presided, and was supported right and left by the Earl of Albemarle, Lord Sondes, Lord Rainham, M.P. (son of the chairman), Lord Suffield, Lord Stafford, Sir Henry Stracey, the Hon. Major Coke, Mr. Brampton Gurdon, M.P., Mr. W. Bagge (late M.P. for West Norfolk), Lieut.-Col. Fitzroy, the Hon. E. K. Coke, the Hon. Harbord Harbord, the Rev. P. Gurdon, Mr. R. Gurdon, Mr. H. B. Caldwell, the Rev. Campbell Wodehouse, the Rev. R. Burroughes, Mr. J. Hudson (Castleacre), Mr. J. Overman, and upwards of one hundred and twenty of the principal agriculturists of Norfolk.

The usual loyal toasts having been disposed of,

The CHAIRMAN gave "The Army and Navy," remarking that it was the 18th of June, the anniversary of a day never to be forgotten by Englishmen. (Loud cheers.)

The Earl of ALBEMARLE (who took part in the action at Waterloo) responded to the toast at considerable length. His Lordship, in the course of his observations, said there was something in the soil and the air of Norfolk which produced good farmers. The farmers of Norfolk had maintained their pre-eminence to the present day, and he hoped that by such societies as the present—by the competitive examinations which such societies produce—they would be enabled to hold their own. England was justly proud of Norfolk agriculture. The county produced farmers as it produced the turnip, which was the basis of its agriculture. Norfolk produced good turnips, good partridges, good turkeys—good everything, in fact; and he remembered that in his younger days it produced also a good breed of trotting horses. Who did not remember the famous trotting Fireaway? (Hear, hear) He was afraid that the breed was now nearly extinct, though he should be personally very happy if it were not. But there was another breed peculiar to the county of Norfolk, in which it preserved the same pre-eminence it had secured in agriculture; he referred to the fighting breed. (Cheers.) The noble Earl then noticed at length the distinguished military and naval officers which Norfolk had produced, from the Wodehouse who fought at Agincourt, to the Felloweses, the Hodges, the Charley Windhams, the Archdale Wilsons, and the Harry Keppels of the present day.

Major COKE and Lord SONDES (another Waterloo veteran) also responded to the toast.

"The Bishop and Clergy of the Diocese."

The Rev. P. GURDON replied.

"The Lord Lieutenant of the County."

The Hon. E. K. COKE, in reply, stated that his brother, the Earl of Leicester, whose health had just been drunk as Lord Lieutenant of the county, had, like a sensible man, during the late extremely hot weather packed up his traps and gone as near the North Pole as possible. (Laughter.) After remarking ironically, amid considerable laughter, on the sudden interest manifested by some gentlemen present in the objects of the society in consequence of the present position of Norfolk politics, the hon. gentleman said he lived in Derbyshire, where there was some of the best and most valuable land in the kingdom. He had no hesitation in saying that they had got acres in Derbyshire that were worth any two in Norfolk; but they were the worst farmers in England. (Laughter.)

The awards in the cattle classes having been read, the Chairman gave the healths of the gentlemen who had acted as judges in that department.

Capt. DAVY responded, and in a brief but telling address observed that if one was inclined to speak, one would feel entirely "shut up" in coming to Norfolk, and especially on coming into the presence of a gentleman on his right (Mr. Hudson), who had been described as the "farmer king." He hoped the decisions of the judges had given satisfaction, but he was one of those independent fellows who did not care much whether they had or not. He and his colleague had come to unanimous decisions: they had had no discord or disagreement, and in their judgment the animals to which they had awarded the prizes were the best in their respective classes. He had often heard of the Norfolk polled cattle, but he never saw much of them till that day; and all he could say was, that they were not so famous in breeding the Norfolk polled cattle as in their farming. It was to be hoped that the breed would be improved, for there was plenty of room for it. In the county from which he came they liked the best beef; they suffered a good deal from toothache, their gums were tender, and they did not like to eat so much sinew and muscle. They endeavoured to produce those animals which gave the most beef in the most valuable parts, and if Norfolk gentlemen who bred this kind of animals would allow him to make a remark, he would suggest that they should get them a little thicker in the fore-quarters; and if they could make them about three feet through instead of eighteen inches, it would be all the better. The noble Earl who had done so much for the agriculture of this county, and England generally, came down into the West Country—to his father, relatives, and neighbours—and brought back to this county the foundation, if he might presume to use the word, of that noble herd of which England had heard so much at Holkham. He might, therefore, perhaps be permitted to make one remark, and he would humbly suggest to those gentlemen who bred Norfolk polled beasts, whether they might not improve them by judicious crosses with the Devons, increasing their beef-producing qualities without decreasing their milk. It would be for others to work this out, but he should be happy to state his ideas on the subject in private conversation. He had come into Norfolk hoping to carry away some information, and he intended to keep his eyes and ears open as much as possible; but although he should pick up a few notes, he should not print them although he might profit by them. (Applause).

The CHAIRMAN said, after the rather uncomplimentary account they had received of their beef, he hoped they should get on better with their mutton.

The Earl of ALBEMARLE: Lord Townshend hopes we shall save our bacon (laughter).

The awards for sheep having been read, the toast of the "Judges" followed.

Mr. CARPENTER responded very briefly, observing that the true character of the Cotswold sheep were shown in the two-shear sheep exhibited by Mr. Sexton.

Mr. SEXTON, as one of the successful candidates, said he should not rest upon his oars, but endeavour to produce better sheep than he had yet turned out.

The "Judges of Horses."

Mr. SPOONER, in reply, said he could not venture to follow the worthy gentleman beside him (Capt. Davy); for, not having taken lessons from Mr. Rarey, he could not accomplish the feat performed by that gentleman, who, in speaking of a polled breed, had boldly taken the bull by the horns (laughter and applause). In respect to the class which he had had the honour of judging that day, they would be aware, from the list read by the secretary, that their labours had not been very light. They had had a good many animals to examine; but fortunately, although there were but two judges, they had been able to get through their task with very little difference of opinion, and on only two occasions had they found it necessary to call in an umpire. It was very possible, or rather very likely, that some of the decisions at which they had arrived might be scrutinized and criticized by gentlemen who had passed round the field and examined the animals. This had occurred before, it would occur again, and they were neither surprised nor displeased that such should be the case. Every man had a right to exercise his own judgment; but he could explain one reason why a difference frequently arose between the decisions of the judges, and the opinions of the bystanders. Bystanders looked through a telescope for good points, while the judges by the aid of a microscope sought to find out defects. By means of the instrument which bystanders used, virtues were sometimes greatly magnified—so magnified, indeed, as altogether to put from view those defects which it was the business of the judges to discover and appreciate, and if necessary to condemn. The judges held that they did more service by pointing out defects than by praising and prizing the most admirable points. He could not pretend to say, not having officiated in the class here before, whether the present show was superior to former exhibitions; but taking it as a local show, and speaking of the class of horses alone, it was a highly respectable one. The judges had had the pleasure of examining many noble animals. Imperfections had been found, and he was sorry to say they were neither few nor far between; but at the same time they found many excellences, and they trusted that on some future occasion a few years hence, if they were spared to officiate as judges in the same class again, they might see all the virtues which they had witnessed on the present occasion, and that some of the blemishes would have disappeared. There was one particular class of horses to which a noble lord at the head of the table had called attention: the class of trotting horses, of which, as a south-countryman—never having acted as judge at any of the Norfolk shows before—he had certainly expected to find some. If there were any of that celebrated trotting breed existing in some of the distant nooks of the county, let them not lie dormant. He used the word "dormant" advisedly, because if such an animal, having powers of propagation, were not shown at the society's meetings, he was asleep, or, at any rate, his master was (laughter). He trusted that the breed had not entirely disappeared. Such horses, which had been heard of elsewhere, had been greatly prized; and if those present would listen to a word of advice, he would say to them, "Cherish what remains of this breed as you would that you prize and value most highly;" because, if the good fore-quarters, fore-legs, and action of the Norfolk trotter were once lost, they could never be restored. What remained of the breed should be propagated to the utmost extent. In conclusion, Mr. Spooner tendered his best thanks to the Committee and Stewards who, by their excellent arrangements had enabled his colleague and himself to complete their awards in convenient time.

Lord SONDES proposed the health of the noble Chairman, which was very cordially received.

The CHAIRMAN, in the course of his reply, expressed the pleasure with which he met so numerous a party of Norfolk agriculturists. His Lordship also referred to the service rendered to agriculture by one of his ancestors, styled "Turnip Townshend," who introduced the turnip into England, and who in doing so conferred a greater benefit on his country than all he did during several years of official employment as ambassador at the Hague, &c. (laughter).

"The Royal Agricultural Society of England" (applause).

Capt. SEYMOUR said that, although his name had been coupled with the toast, he should take the liberty of associating it with a name of European reputation—John Hudson (applause).

Mr. HUDSON responded, and observed that he had been a member of the Council of the Royal Agricultural Society for some few years. He had been returned (for the members of the Council were eligible for re-election) six times; almost as many times as his excellent friend Mr. Bagg was returned as member for Norfolk (applause). He hoped the Royal Agricultural Society had done some good in regard to the production of food for the increasing population of these islands. It had offered prizes for the best breeds of cattle and sheep, and for the best implements that could be produced. Without those implements, he thought the agriculturists of England would now be in a very poor place. The youth of the country were gone to fight its battles, but mechanical aid had come to their assistance, and he was sure that they would be able, by the blessing of Providence, to gather in the harvest; which he hoped would be a most productive one, if it was not put down by too much wet. He hoped, with the assistance of the new machines which had been brought out, corn would be cut exceedingly well; and he trusted those present would not be afraid of these implements. He had used them more than a year, and he would not have recommended them if he had not had full confidence in them. Not only had reaping machines been brought to bear, but the steam-plough was coming into use; and he hoped that before long farmers would be able to reduce the expense of their horses' keep. The present Speaker of the House of Commons, not many years ago, proposed that the Royal Agricultural Society should give a prize for a steam-plough. This had been done; a machine had been brought to bear, and he had seen acres better ploughed by it than he had ever seen them ploughed by horses. This being so, he thought the man who had accomplished this result ought to have had the prize. The prize had, however, not yet been awarded; the work must be done to the satisfaction of the Council, who, he must say, were rather slow in giving away their money. Having appealed to those present who were not at present members of the Royal Agricultural Society to become so at once, assuring them that the *Journal* alone was well worth the subscription, Mr. Hudson referred to the introduction by Lord Townshend's ancestor of the turnip, which he called the sheet-anchor of Norfolk. His late noble landlord, if he did not introduce mangel wurzel, was the great cause of its being grown to a great extent; and he (Mr. Hudson) had no doubt that if it was cultivated upon a large scale it would tend to produce food for the increasing population of this kingdom as fast as Providence might please to increase our race.

The rest of the proceedings may be summed up in a few words. Mr. Brampton Gurdon, M.P., in responding to the toast of the County Members, paid a feeling tribute to the memory of the late Sir Edward Buxton. Lord Raynham, M.P., gave the Yeomanry, to which Mr. Seppings replied. Mr. Stephen Leeds proposed the health of Lord Suffield, Master of the Norfolk Foxhounds, and, in replying, his Lordship spoke encouragingly of the prospects of the next season, stating that, although Lord Townshend was about to let Raynham, the tenant would preserve foxes. To the toast of the Acting Secretary, received with merited cordiality, Mr. E. C. Bailey responded; and the meeting broke up with the parting sentiment of "Our next merry meeting."

LONDON, OR CENTRAL FARMERS' CLUB.

THE PULPING OR MINCING OF ROOTS.

The usual monthly meeting, the concluding one before the adjournment to November, was held on Monday, June 7, at the Club-house, Blackfriars. Mr. **Owen**, of Clapton, presided; supported by Messrs. Robert Baker, W. Bennett, J. Tyler, J. C. Nesbit, C. T. James, John Thomas, J. G. King, Spencer Skelton, T. B. Chapman, J. Russell, G. Fidler, J. Cressingham, J. Wood (Croydon), J. Appleford, C. Asplin, R. Marsh, J. T. Davy, Ibbott Mason, C. J. Brickwell, T. Lyall, G. Smythies, F. Dyball, J. Hooker, — Paul, jun., J. Dunn, &c., &c.

The subject of discussion, introduced by Mr. T. Fordham, of Snelsmore Hill, Newbury, was "The Benefit of Pulping or Mincing Roots for Cattle, Pigs, and Sheep."

The **Chairman**, in his opening remarks, said they all knew that the growth of turnips was a very expensive process. It was, however, one of great interest to the farmer; and no one could doubt that the discovery of the best method of consuming roots must be very advantageous to all of them. He hoped, therefore, that Mr. Fordham and other gentlemen would be enabled to throw some light on the subject.

Mr. **Fordham** said: Having the pleasure to introduce to your notice for discussion this evening the advantage of the pulping and mincing of food for cattle, pigs, and other domestic animals, over the old system of the turnip slicer, I beg to observe that I do not presume to teach, much less to dictate; my object being chiefly to explain the system, in order that my brother-members may be assisted in judging of its merits. One of the many advantages gained, is the getting rid of the dangerous risk of choking, and, as far as I can ascertain through my friends, of hoove, or hoving. There is also great economy in the consumption of roots with straw-chaff, and this in some cases enables twice as many animals to be kept upon the same acreage. Oxen when turned into a fresh pasture feed with great avidity, and they take their food in pellets, which after about 40 or 45 minutes they prepare for rumination. I do not intend to enter minutely into the anatomy of the ox, knowing that a gentleman versed in veterinary science would be more fitted to discuss the various wonders of the digestive organs. We all know that the ox has four stomachs—the rumen, the reticulum, the manyplus, and the abomasum. I find, on examination, through the kindness of a respectable purveyor, that the rumen, or first stomach, has a number of pillars or flaps. The late Mr. Youatt, in page 425 of his work on Cattle, published by Baldwin and Cradock, says: "These flaps are in constant motion; the food is perpetually revolving through its different compartments, and undergoing important preparation for future digestion. The muscles are the mechanical agents by which this is effected; and by running in these different directions, they are enabled to act upon all the differently formed cells of this enormous viscus." Professor Jas. B. Simonds, in a lecture at the Royal Veterinary College, published in the *Farmer's Magazine*, vol. i., p. 245, says: "The reticulum supplies the third stomach with aliment suited for digestion. This it receives from the rumen by the ordinary peristaltic action that is continually going on in that viscus." Here, then, we have nature's pulper. Surely, by aiding in this work by means of a clever invention, we greatly assist the animal in preparing its food for digestion, the roots being intimately commixed with cut hay or straw, and thus may we account for the shortness of the time required to bring animals into a ripe and wholesome fatness fot human food. What are the circumstances that regulate the tendencies of cattle to fatten, is yet unknown. The fact is, cattle consume very different quantities in different states of condition, consuming more when lean than when fat. I have here a pamphlet containing the names of sixty-four highly respectable persons, all well-known as improvers of the system of agriculture, and all signifying their approval of the pulping and mincing of food for animals. In order to test this method accurately, I purchased, last autumn, two three-year-old North Devons, at a fair in my neighbourhood, for £14 a-piece. They were not in good store condition. I turned them into a cattle-yard by themselves. On the 3rd of December, I placed them with the store cattle upon two bushels of cut oats, straw, and one bushel of pulped swedes (45lbs. weight), pulped twenty-four hours in advance, in order that they might ferment previous to the feeding. I continued this food until the 13th of January, when the animals were put upon the fatting food. They had two bushels of pulped mangold wurzel mixed with one of straw, and in addition 3lbs. barley-meal per day, until the 28th of April—fifteen weeks altogether—when they were sold. In the course of the day the fatting beast were well dressed with the dandy brush. This is a most essential thing to the animal's happiness; it removes dust, circulates the blood, and tends greatly to familiarize the beasts to their attendants. Everything is kept particularly clean, the droppings being removed whenever the herdsman enters. Let me now state how these cattle were fed. At six o'clock in the morning they had a mixture of straw, chaff, and pulped roots; at nine o'clock the mixture; at half-past eleven, straw chaff and 3lbs. of barley-meal; at one, the mixture; at four, the mixture; at five, the mixture; at six, straw, chaff, and clean wheat straw; after which they were well bedded. The cost of the food which the two North Devons consumed was £6 9s. 9d., which added to the first cost, namely £28, made a total outlay of £34 9s. 9d.; and as they were sold for £40, there was a profit of £5 10s. 3d. I have four cows, stall-fed Alderneys, all in good condition. They have two bushels of pulped mangel and one of straw. The butter made from this food is very good. I have yearlings in excellent condition, store-fed with the refuse of the stalls from the fatting animals, as they do not consume their allowance when long tied up. I may state that my land being a strong adhesive soil, and all my manure having to be hauled up-hill, I feed my horses upon oats, beans, and hay. Pigs I do not fatten; but I keep a large number in store: seldom less than fifty, and generally above a hundred. They are fed upon coarse pollard and pulped roots, with the milk and wash of the house, and with such refuse of the trimmings of the roots as they find in the yard. My store-pigs are in excellent condition, and sell, as soon as they are sent to market, at £1 a-piece and upwards. I find that young pigs, under a quarter of a year old, require peas and other generous food. My sows are in good condition. Sheep I cannot say much about. I think, however, that the pulper would be a great improvement in fatting sheep, if some contrivance could be made for moving the sheep in the field. Owing to the extension and improvement of the cultivation of mangel-wurzel, that root is, as you are all aware, greatly used at present in the feeding of sheep.

Mr. R. Baker (Writtle) said he had himself used a pulping machine, and he believed he was almost the first person to introduce the subject to the notice of the Club. The principle with which he started was that it was injudicious to feed cattle on roots alone, but that whenever roots were given to cattle they should be combined with some description of dry food; and from this he was led to the principle that the mincing of roots into very small particles, and then mixing them with dry food, was preferable to pulping. He had tried the pulp with pigs, with sheep, and with cattle; but the result was not so satisfactory as to justify the continance of it, and consequently he had laid it aside. He still adhered, however, to the principle of mixing every description of roots with dry food, and this he did with regard to forty cows during the whole of the last winter. For feeding stock the mangel wurzel was sliced either with a Gardner's slicer or with a pulping-machine, which pulled the mangel in pieces, and which was afterwards mixed with chaff. As regarded the pulping, which had been so much talked of—the pulping of roots into small pieces, and then mixing them with chaff, and afterwards letting them remain till they got into a state of fermentation—he must say that he thought no practical benefit arose from it. Those who had read the results of the experiments made by Lord Kinnaird, during the last winter, with regard to the pulping of roots and the giving them in a fermented and in an unfermented state, must, he thought, have been led to the conclusion that, taking into account the question of expense, which would of course always operate in the mind of the farmer, there was no practical advantage to be gained by the pulping system. The experiments were very elaborate, and were very well carried out; the results were published in the *Mark Lane Express* and the other leading agricultural papers, and any gentleman who referred to them would there find a vast amount of information on the subject. He must confess that his own experience was rather small. Mr. Hawkins, of Smallbridge, had pulped for his feeding cattle on a larger scale; and during a visit which he paid to him, he told him (Mr. Baker) that he had not found such an amount of benefit as would enable him to speak decidedly on the subject. He said the expense was very considerable, and although the cows gave more milk, still he did not know whether or not the extra quantity was sufficient to meet the additional expense. Any difference in the food must arise from the fermentative process. No doubt that process affected the roots so as to make them more fattening than they otherwise would be; but, considering the extra expense occasioned by the pulping, the practice did not appear satisfactory as regarded results. He did not know how the fermentative process acted chemically; but he believed that so far as pigs were concerned, the fermentation of any description of food was beneficial. Pigs fed on any kind of food which had gone through fermentation with great avidity, and seemed to do very well upon it.

Mr. W. Bennett (Cambridge) said, Like his friend, Mr. Baker, he had not derived from pulping all the benefit which he had expected. At the same time, he thought it was very important to get the roots into very small particles, where the object was to consume a large quantity of other food besides roots. He began pulping with Phillips's machine: and there was one good result which he soon discovered; when roots appeared to fall short, pulping made them hold out exceedingly well, and this was the case in his own experience. But although pulping caused the roots to hold out well, there was not that amount of benefit to the animals which he expected to witness. He abandoned the machine because it did not do the work fast enough. The man and the lad who were usually employed in pulping did not get enough through the machine, and consequently the animals did not obtain as much food as they required. After parting with that machine he got another, which did not pulp the roots, but cut them into small shreds, so as to fit them for mixing well with straw or hay chaff. He used partly the one and partly the other, and he found that that machine got through more work than the other, while the stock did equally well. He was of opinion that in the feeding of cattle it was desirable to have a certain proportion of dry food mixed with the roots, especially as they were not always of the best quality. The result of his experience, extending over some years, was that it answered the purpose of the dairyman and grazier, if not to pulp—and he could not call his own machine strictly a pulping machine—at all events to cut roots into very small pieces, so as to enable it to mix well with the chaff which formed part of the animal's food. By that means he thought they would improve the fattening qualities of the roots, and at the same time make their roots go further than they otherwise would do. He agreed with Mr. Baker that in all such matters they must have regard to expenses (Hear, hear); for unless there was a profit from their several operations, nothing would be satisfactory in the end. He must say that their excellent friend, who introduced the subject, appeared to have been very lucky this year, inasmuch as he had obtained a profit. Sometimes, however, when a man had a hobby, he contrived somehow or other to ride it well; and he must add that sometimes, under such circumstances, labourers, wishing to please their master, contrived to make the thing answer his purpose (laughter). As a general rule, however, he paid the most attention to those who did not farm very largely themselves, and who did not keep a bailiff, with a number of servants under him—a state of things which often caused others who listened to what was said about the results, and imitated the experiments, to be marvellously deceived. He should pay great deference to the experiments of such a man as Mr. Pawlett. That gentleman's farm, though not large, was a very good one. He had tried experiments in feeding with mangel-wurzel alone, with turnips alone, and with the two mixed together; he had also experimented a good deal in boiling; and he did not know any experiments, the results of which might be more usefully circulated among farmers, or which would do more to prevent them from being led astray in reference to this subject.

The Rev. C. T. James (Ermington Rectory, Ivy Bridge) thought the best mode of testing the value of any system of recent introduction was to compare it with what was done before. Before pulping commenced the steaming of food was carried on to a considerable extent, and, he believed, with very good results. He himself had practised steaming a good deal, especially in winter, when the keeping up of animal warmth was a matter of so much importance; and one great advantage of the system was that it brought a large quantity of roots within the reach of what might be termed, in a farming point of view, little men. He had heard nothing as yet in reference to what he considered a most important question, namely, what effect the fermentative process produced upon the nutritive qualities of roots, and whether animals ought to eat roots after they had been brought to a fermented state for some time, or within four-and-twenty hours. Now he wished to state what his own experience had been with regard to that question, having tried experiments upon horses, upon horned cattle, and upon pigs. As regarded pigs, the effect which the application of heat produced on the saccharine qualities of the food was generally in favour of fermentation; but horses and cows were far more sensitive than pigs, and if food were given to them in a fermented state—if it had been steeped as it were in a tub, those animals were very likely to reject it. The grand point was to take care that the process did not go beyond the rising of the bubbles—that the head did not break; for if the latter effect were produced, the pinguitudinal or fattening qualities of the food were likely to escape. One great advantage of the system was, that it met the case of old animals whose teeth were not in a fit state to deal with the food properly without its having undergone some change, and also of young animals in whom the process of dentition had not gone far enough. As regarded horses, he had found that there was no period of the year in which this kind of food might not be given to them with advantage, especially if it were mixed with salt. With reepect to horses and cattle, he was of opinion that pulped roots ought to be given to them within four-and-twenty hours, being mixed, of course, with a certain proportion of chaff, or some other solid food, which is essential; and his own experience went to show that the pecuniary effect of adopting this system was a saving of 2½d. in every shilling. He should be glad to hear something that evening with regard to the effect produced by the fermentative process upon nutriment, that being the great point on which information was required.

Mr. J. C. Nesbit (of Kennington) said, having been called upon by the Chairman, he begged to offer a few remarks, rather in reference to the principle on which all these preparations should be made use of, than in relation to the practical purposes to which they should be applied, though the practical purposes might be deduced from the principle which he was about to lay down. The question on the card, namely, "The benefit of pulping or mincing roots for cattle, sheep, and pigs," resolved itself into this—Could they, by either mechanical or chemical processes, reduce roots from their ordinary state into a better form for fattening animals? Now that being the question, he would first observe that he did not see how by means of any mechanical operation they could do anything beyond simply bringing roots into a more minute form, and thus enabling the animals to swallow them in less time. When this had been done it would take less time to get a given amount of nutriment into the animal's stomach, and consequently the animal would have more time to lie down. That was of course, in itself, a matter of very great importance. Now there could not be the slightest doubt that in the feeding of all animals, and more especially oxen and horned cattle, with roots pulped or reduced into small particles, it was necessary that there should be some hay or straw or solid food of some kind mixed with the roots, otherwise the animal would not be able to chew its cud—it could not exercise the power which it naturally possessed of making its food into little balls. In all cases in which a pulping machine was used for the preparation of roots, recourse must be had to some kind of solid food. Even sawdust should be used with roots, if they had nothing better to mix with them. If straw and hay and roots were all given to them together, the animals would themselves select the proper quantities; and they would eat the straw and hay at the same time that they were eating the mangel-wurzel or turnips. If the food were prepared artificially, they must always take care to put the proper amount of solid matter with the pulped food; for, without that, the animals would inevitably become ill. When they came to the cooking of the food, or the leaving the pulped matter to ferment for a certain period of time, they came to a totally distinct question. The question which then arose was, whether they wished to fatten the animal within a very short time; and whether, therefore, a portion of the digestion should, as it were, take place before the food was given to the animal. In that case, they might ferment the food to a certain extent before giving it to the animal, and thus cause it to fatten quicker than it would do under ordinary circumstances. An illustration of this was afforded by the experiments of Dr. Thompson on the malting of barley. Now this was the simple question to be considered in reference to the pulping of roots. If they chose to let roots ferment for a certain time, they would have a portion of the starchy matters turned into sugar. If they mixed with the pulpy matter a certain quantity of chopped straw, and the straw were well intermingled with the fermented matter, the food would furnish an increased amount of nutrition, and the animal would be able to obtain a given amount of aliment in a shorter time than it otherwise could. It was remarked by Mr. James that horses and cattle did not like food which had been fermented. He believed that horses liked sugar and treacle better than almost anything else. He once met with a pony which, in consequence of being out of health, had some treacle given to it with its food; and such was the sagacity of that animal, that it would never afterwards eat its food without treacle (laughter). In conclusion, he would remark that he thought a certain amount of solid matter was absolutely necessary; that fermentation was merely a certain amount of digestion outside the animal; and that pulping was merely a mechanical means of assisting the animal to do a certain thing in a shorter time than it would otherwise be able to do it in (Hear, hear).

Mr. THOMAS (Bletsoe) said he had during the last two years done a little in the way of pulping or mincing. He had tried the system of fermentation. It depended a good deal on the weather. In cold weather it would take four-and-twenty hours to produce the same effect that was produced in hot weather in twelve hours. His plan of pulping or mincing was simply this: Having a fixed steam-engine, he applied a strap to the pulper; a scuttle basket having been put under the pulper to catch the pulp as it fell from the machine, and which was removed through a loop-hole into an adjoining chamber, and was all mixed with the chaff; and after it had remained about four-and-twenty hours, it was given to the animals. He found that his store-beast did exceedingly well upon that system, better than they did upon mangel wurzel which was not pulped. It was a great question now, whether the thing would pay if the work was done by hand. He had given pigs pulped mangel wurzel mixed with barley-meal, bean-meal, and other sorts of meal. This year he had consumed a good deal of wheat-meal along with barley-meal, because it was at the present time one of the cheapest articles of food that could be used (Hear, hear). He referred of course to the tailings of wheat; but even if they used the best, it was questionable whether at present it would not be more profitable than oilcake. He had also tried the pulping system with fat beasts—tried it in connection with cake and different sorts of corn; but he was not ashamed to confess that he had not made any profit this year; on the contrary, he had decidedly sustained a loss with every experiment that he could adopt. His own experience, with regard to pulping and mincing, went to show that they caused a great saving of roots. He admitted that this question was in a great degree one of expense, but even in that point of view he was inclined to advocate it.

Mr. G. SMYTHIES (Marlow, Leintwardine) had tried pulping for a couple of years, and had not found it so expensive as some gentlemen appeared to have done. Putting as he did a strap to a steam-engine, like the last speaker, he found the expense very small indeed. He had tried it for too short a time to speak positively as to the benefits to be derived from pulping roots, but his impression was that it answered well for store stock, and also for feeding beasts, where a large quantity of cake or corn was given; but in the ordinary way of feeding with turnips and hay or straw it did not pay. He thought with some of the former speakers that more time was required to judge of its merits.

Mr. LYALL (Lincolnshire) said that for the last two years he had used a root-pulper. The first time he did so was immediately after the Lincoln Exhibition of the Royal Agricultural Society. Before that event he and his neighbours were rather behind the rest of the community in agricultural implements, and one gentleman went so far as to say that the village blacksmith could supply them with all the implements they required; but this the Lincoln Show proved to be altogether a mistake (Hear, hear). The first pulper he had was manufactured by Keeley; but he found during the first year that using it economically with store beasts he was exactly in the same position as Mr. Bennett, with Phillips's pulper, and that it would not do a sufficient quantity of roots to enable them to hold out. In the fattening of pigs he found it of great advantage. He adopted the plan of the rev. gentleman who had addressed the Club that evening, namely, steaming his turnips and mixing them with other materials; and his pigs did much better by allowing the food to remain a sufficient time to ferment, without resorting to the process of boiling. The quantity of water naturally contained in turnips must convince any practical man that he could not use them to advantage by any steaming process. After the Chelmsford Show he purchased one of Bentall's pulpers, which he used all last winter; and with its aid he had been enabled to save 3 lb. of cake per store beast per day. His friend, Mr. Charles Swaine, one of the principal farmers in Lincolnshire, and a thorough practical man, had written him a letter, in which he expressed a decided opinion in favour of the process of pulping; and he (Mr. Lyall) had found from experience that he could use roots profitably during the cold months of the year. His plan, however, was different from that which was pursued by some gentlemen; for instance, he observed that it would not do to pulp roots more than twenty-four hours in advance, else he could not get the beasts to eat the food. His practice, therefore, was to pulp every morning, and such was the excellence of the machine that he himself had pulped as much as six pecks of mangel wurzel in two minutes. He must say, he was surprised at the remarks of Mr. Baker respecting his own pulper. He was sure that if he had one of Bentall's he would find that he could use it with roots to very great advantage.

Mr. BAKER said that Mr. Lyall must have misunderstood him, for he himself had introduced the question of pulping to the notice of the Club two or three years ago. In the remarks he had made he had distinguished between pulping and mincing. The mixing of chaff with roots he had always advocated, as one of the best methods of feeding he had ever seen practised. Bentall's pulper reduced it in very small quantities, and what he contended was, that the system of reducing mangel to a very minute extent and mixing it with chaff was not decidedly beneficial, and he thought that Lord Kinnaird's experiments fully proved the truth of that. He meant to say, that when the whole expense of pulping was taken into consideration, whether that of mincing or breaking the roots into small pieces, there was not the advantage which some persons appeared to suppose. Upon this point he might take the liberty of saying that he thought the Royal Agricultural Society was rather to blame; for although it gave prizes for the best machines, yet amongst those which came into competition year after year might be found many which were certainly of very inferior quality.

Mr. NESBIT reminded Mr. Lyall that the pulping of roots would enable animals to lie down quicker than otherwise they could do.

Mr. MASON said that last year he had one man and a boy employed in working one of Bentall's machines, for the supply of 60 bullocks, which never appeared to be dissatisfied with the quantity of food they had. On the contrary, it would seem as if they had rather too much. He found that, without any difficulty whatever, sixty bushels a day were produced; and, so far as economy was concerned, he regarded the process as a very great saving. Much had been said about fermentation, in which he fully agreed. He thought that twenty-four hours was the utmost extent of time during which the food should be permitted to ferment; and this, he said was the result of his own experience. On the whole, he was of opinion that the system of pulping was most economical and effective.

Mr. DUNN (of the Avon Club) made some remarks on the quality of roots consumed by cattle, but these he subsequently withdrew.

The CHAIRMAN said, that being ignorant of the pulper he could not take upon himself to speak with regard to its properties; but he thought that the fattening of a bullock or sheep ought always to have reference to the mode of feeding. For instance, he did not think that they should feed a sheep or a bullock in the same manner throughout as they did at the commencement; nor could he quite agree with his friend, Mr. Fordham, in the plan he had adopted of continuing to feed the animal. His (the chairman's) system, with both sheep and bullocks, was to feed them only three times a day. He used a common slicer, and after the animal had fillep its belly—the mixture of chaff following upon the sliced roots, he was satisfied that it had ample amusement in lying down, and masticating its food in contentment. If the animals did not eat all the food that was placed before them, he at once had them removed, and others followed to clear the troughs. They were then placed in the yard, where they lay down and took rest, but there was no more feeding. (Hear, hear.) He fed his fatting sheep in the same manner that he did his bullocks in the yard. In the spring of the year he cut his mangold and swedes, and mixed them; and he always found that the crossbred sheep particularly fed faster in the yards than in the folds. Many persons threw the roots about the folds or the fields; he seldom did, except for store sheep, and he always put his sheep into the yard, because he had a surplus of straw. On a farm like his, and in fact throughout that district, the cutting up of straw was altogether unnecessary. They had ample hay to mix with the roots throughout the year, without the addition of straw, and he must say that he had never found straw of any benefit, or that the cattle would eat of it so as to do them any good. As he had before stated, he was ignorant of the pulping system. Mr. Fordham, however, had paid great attention to it; he had made it his hobby, and he (the Chairman) was sure that his statements were correct. (Hear, hear.)

Mr. FORDHAM then replied.

Mr. JOHN THOMAS had understood Mr. James to say that he consumed a large quantity of salt in feeding pigs; and he should like to be informed if that were a proper course to pursue, inasmuch as he had always been led to believe that if salt were given in large quantities it did more harm than good.

Mr. NESBIT said that, if they gave salt to pigs or any other animals, it had a tendency to prevent them from fattening; but that in hot weather it certainly prevented disease. When they were not well it would be useful to give them a little salt. Under other circumstances there was sufficient salt in the food with which they were ordinarily supplied. To horses they might give salt with impunity.

A vote of thanks was then passed to Mr. Fordham for his lecture; and a similar compliment having been paid to Mr. Owen for presiding, the proceedings terminated.

TIPTREE-HALL STILL ON VIEW.

Important to Agriculturists and Others.—Just re-opened, after extensive alterations and repairs! An early visit is requested! Try our magic crops: cheapest and best!

The terrible veto has been withdrawn. The long vacation is over. The great lesson is once more to be taught us. Tiptree-hall is still on view. Like Sheridan's stage father, the Alderman may be firm, but the farmer, he relents. We have given a long good-bye, no doubt, to the famous "Gatherings." But the example itself is yet at our service. Who shall say but that the change is one for the better? The transplanted City-feast was never needed. The majestic Mr. Harker, the Cider-cellar singers, and the amateur conjurer who made no mouths at swallowing anything and everything, were hardly in place, after all. The day might so serve a double duty; but it was not classically the feast of Ceres. People came more to be amused than instructed; and there was little argument to be had from a man, who declared these were the finest mangels he ever saw, having never, to the best of his recollection, seen any before in his life!

The innate hospitality of Mr. Mechi, then, breaks out again, as needs it must. It is, however, tempered with discretion, while it promises to be of far more real use. A party of ten or twelve practical farmers will see more, and will be much more ready to do justice to what they see, than they would in a bounds-beating chevy of some two or three hundred. The lesson, too, will be reciprocal. A plain agriculturist, who would not care to raise his voice amongst City Magnates and Grand Plenipotentiaries, might put a few home questions to the worthy Alderman, when the eyes of England were not centred upon them. Mr. Mechi deserves every credit for reviving, if not originating, such kind of meetings. His were only a little over, done; and they will do far better now. We counsel our friends to accept the invitation as heartily as it is given. Whenever the opportunity occurs, let them send in a card, and book themselves for Kelvedon. We shall always have a corner for what they see there, and what they think of what they see.

These pleasant little "calls" are visibly on the increase; thanks in a great degree to Mr. Mechi's lead. With one the occasion is a sheep-shearing, with another a ram-letting, and with more, the visit of some agricultural society to the district. Within only this last week or two the opening day of the new association Essex provided such means and opportunity. On the Monday Sir John Tyrrell had a party at Boreham, Mr. Baker a few friends during the week at Writtle, and on Thursday Mr. Fisher Hobbs his turn at Boxted. All these were well done, but it is of the first of them that we purpose here to treat. Sir John brought landlords, tenants, amateurs, and manufacturers well together. There were such men as Lord Rayleigh, Colonel Lowther, and Captain Bennett to represent the owners of the soil. Mr. Hutley, Mr. Seabrook, and Mr. Bewers were directly called on to act for the farmers. Some of Dray's and Smith and Ashby's implements were at work; and Mr. Alderman Mechi, Mr. Dixon, and others, spoke and answered for collateral interests.

As a test of agricultural progress, the programme was not altogether a happy one. A new mowing machine would not mow; and a new hay-rake was found to be nothing like as good as Smith and Ashby's well-known one. The only thing, indeed, that told in this way was "a cocking-rake," for use in catching weather, of Sir John's own invention; but even this could not command the prize for the new implement, on the day following. There were, however, other signs of progress, especially in the speech-making. Mr. Dixon, for instance, in proposing the health of the host, said that, "without the support of those in the position in which Sir John stood, progress would be slow; but such meetings as this augured well for the cause." The worthy Baronet himself stood up manfully for the use of the steam-plough, and descanted on the merits of the implement he had invented—not bad signs, either of them, of the progress we are achieving. Mr. Mechi, of course, followed; and from him we may gather something even a little more definite as to what standard we should act up to. He commences on the old string:—"The more people they had, the more prosperous and powerful they would be, if they fed them. To do that they must improve their agriculture. For himself, he had passed through an agricultural purgatory, and for fourteen or fifteen years Mr. Mechi was looked on as a great fool and a humbug. But he had been hopeful; he had gone on, and he had lived to see his friends adopt what they before condemned. The steam-engine which he put up was the first in the county, and Mr. Samuel Jonas said he was a fool to put it up; but nearly all his friends had now got steam-engines! So it was with draining; and he was glad to find that conviction had come to the minds of his friends at last. He thought that to secure a greater supply of food from the soil they must have increased depth of cultivation. He believed they could not air the heavy lands too much, or enough. He had evidence of this on his farm, where, after carting mangold-wurtzel from a field, he could show that, by the compression of the carts on particular stetches, the crops were less on those stetches in the following year; and they might infer from this that if the compression of the land rendered it unfertile, the opening it and exposing it to the air must make it fertile. That was illustrated by Mr. Smith, of Lois Weedon, who made a long fallow by the side of growing-crops. But he ought to guard himself on this point, for he had been misunderstood upon it. He did not say—'Bury your good soil, and bring up the thirsty and cold to put your seed in.' That was not what steam-cultivation was to do for them; but the object was to break up the bottom soil, so that it should, by the infiltration of manure, become what the top soil had become by aëration. They could not do that with their present horse-power; and he believed that in ten years they would see steam-engines in use for this purpose in Essex."

And, on the day following, as will be found in our report, speaking to the same theme, Mr. Mechi said:—"I congratulate you on the progress agriculture has made during the last few years. I wish I could say you had arrived at perfection. But it struck me to-day that while everybody went to see the reaping machine, which they thought nothing of several years ago, very few had been to see the steam plough. I asked many of my friends whether they had been to see the steam-plough, and they answered, 'I have been to see Burgess and Key's reaping machine.' As I have cut my corn with a reaping machine for the last seven years, I thought that was done with a long time ago; but I hope agriculturists will use steam for the cultivation of the soil, which is one of the new elements of the profits of agriculture."

Still do we find him the sure pioneer of the whole force. He put up the first steam-engine in the county. He has cut his corn with a reaping machine for the last seven years; and he goes in now for steam ploughing and deep cultivation. There is one great practical commentary on all this. It is in the letter of invitation we published last week:—"Those who are desirous of estimating the value of agricultural improvement, may inspect my crops between this time and harvest, and form their own opinions by a fair comparison with the surrounding neighbourhood of similar soils to my own." Nothing can be more "fair," honest, or straightforward than this; and again we counsel our friends not to lose the opportunity.

Some men are born to play many parts, and it is not merely as an agriculturist or an alderman that Mr. Mechi is famous. Equally popular is he at Institutes and Athenæums; apt as a linguist; and renowned, again, as a sportsman. It was in something of this character that he concluded the day's performances at Boreham. Let the county paper tell its own story:—"After luncheon, the company assembled at a straw yard, round which waggons had been placed for the accommodation of the ladies, to witness some feats of horse-taming by Mr. Giblin, the protegé of Mr. Miles Formby; and Mr. Alderman Mechi, installed as chairman upon a neighbouring wall, was appointed to adjudge the prize to the panting victor. A horse was brought in, described as a vicious brute, which no groom could saddle or man dare mount; but either there had been some mistake about the matter, or the animal had in his own mind entered into a conspiracy to baffle the sport by a peculiar exhibition of good temper; for it was soon found that an ordinary mortal could mount and manage him with ease. Some exhibitions of Rareyism and anti-Rareyism followed, in taming a tame horse; and the company left far from convinced that Mr. Rarey would find a formidable rival in Mr. Giblin."

We can well picture the worthy Alderman perched upon the top of the wall, fully conscious of the arduous and not altogether enviable position he was filling. But, unluckily, Sir John's experiments would not work. The new mower would not mow, the improved rake would not rake, the vicious horse would not be vicious, and the horse-tamer could not tame him. We congratulate the Chairman on his safe return to mother earth—after all, his first and fondest care.

TO THE EDITOR OF THE MARK LANE EXPRESS.

Sir,—Those who are desirous of estimating the value of agricultural improvement may inspect my crops between this time and harvest, and form their own opinions by a fair comparison with the surrounding neighbourhood of similar soils to my own.

I consider it my duty to agricultural progress to invite this comparison.

Thick sowers may also judge of the propriety of drilling one bushel of wheat per acre on such soils as my heavy soils.

I am, Sir, your obedient servant,
J. J. Mechi.

Tiptree Hall, Kelvedon, Essex, June 12, 1858.

THE RECENT HAIL-STORMS.

The farmer is proverbially difficult to please. It is seldom quite fair sailing with him. If the dry and sunny is good for the growing wheat, it is most likely bad for the roots. Or, showers that must bring on the turnips, will do little to improve the hay in cock. Most probably he would like it fine here, and a fall there. The clerk of the weather might even put him in office, and the chances are he would anything but satisfy himself. And yet there is no man who should be better prepared for the variations of season, climate, and temperature, for there is none other whose business is so much influenced by them.

If, however, the farmer cannot command the seasons, he may in some measure render himself independent of them. It should be difficult indeed to suppose any one would omit the opportunity of doing so. And yet there are thousands at this moment—prudent, careful men in other ways—whose all may be sacrificed by the passing cloud of a summer storm. Men, who cannot say for four-and-twenty hours together when this shall or shall not come; and who, moreover, have constantly recurring evidence of how often such a visitation does happen. It was impossible to take up a London or local paper within this week or two, without reading of the fearful losses and injury occasioned by the recent hail-storms in different parts of the country. In many instances every kind of crop was destroyed, and to be uninsured was simply to be ruined. At least in some cases it was so; and the humiliating subscription-list the only means by which the sufferer could in any way expect to weather the storm.

It must be distinctly understood that we have no desire to puff off any particular office or project. Within the week we have certainly put ourselves into communication with the more important hail-insurance Societies, and have intelligence from the London Farmers', the Norwich, and the Midland Counties at Lincoln. A line to the Hertford Office has to this time produced no reply. These are the three leading Institutions of the kind, and they all confirm the flying reports which had already reached us. There has been nothing so severe since the great storm of 'forty-three; and although occurring at different times, and taking various circuits, there are few districts but that have felt something of its force. In many places the injury has been altogether unparalleled. Take, for example, the following communication to the Norwich Office: "Storm, 12th June.—The Surveyor of the General Hailstorm Society stated that in the neighbourhood of Stratford-on-Avon there were upwards of a thousand acres of wheat which would not produce a thousand coombs (500 qrs.), but that the beans and peas had suffered the most; many fields were so utterly destroyed that the pigs were turned in, to feed off the hulms; one field of peas much injured on the 12th, suffered from a second hailstorm on the 16th; one farmer uninsured has sustained a damage of £800 to £1000; another about £600."

Then, again, near Biggleswade: "The storm has damaged the crops about here, to the amount of some thousands." And another official report from the North says: "Storm, 4th June.—A person walking from Helmsley to Thirsk in the open moor during the storm; the hailstones were larger than walnuts, and battered in his hat and much bruised him personally. Several farmers told him that they never remembered such a storm, and the damage to the growing crops in this part of Yorkshire was very great."

The reports to the Midland Counties office also speak to the damage done in Yorkshire during the first week in June; more especially in the vicinity of Malton, Knaresborough, Otley, and Wakefield. Nearer town, Berkshire, Gloucester, Huntingdon, and Warwick have been the scenes of much similar disaster; while the following graphic description is from Cambridge:—"The storm of to-day (12th), for we had two, and both had large quantities of hail and ice, which appeared quite as destructive as the one on the memorable 9th August, 1843. The second raged from two to half-past three; the thunder, lightning, and hail were awful and grand, and, with the deluge of rain, put a stop to all business, although it was market-day. We already hear of great losses to the crops."

Let us picture the farmer driven out of Cambridge market at so critical a period as the middle of June. Let us see him starting, when the storm has quite subsided, for home again. And, supposing him not to be insured, let us try and imagine what he thinks, as he hurries on his horse at far beyond his usual steady jog-trot pace. Will it have reached him? Or, rather, can it have missed him? He dare hardly take the turn that leads to his own place, or stand up in his gig and look for the grand fifteen-acre piece that he was so proud of, this morning. The very boy that opens the gate seems to have more to tell than he will ask for. There are many trying occasions for us all—the merchant when his great venture is not telegraphed to her time—the turfite as he sees his horse drop back into the crowd—the prisoner when the jury come into court again. But even theirs is a lifetime hardly fraught with more anxiety than that of the farmer driven out of Cambridge market by a summer storm. Can any one of them be a greater speculator, or in any way more to blame? One may play with his fortune, and the other with his life. The uninsured farmer risks almost as much—he stands the hazard of the die, moreover, day by day, with the one chance only of heavy loss. For a few pounds he is safe, or in a few minutes he is ruined.

A word more to the incautious. It is not merely one storm—one crash—and we are free. It has escaped us this time, and may not happen again for years. On the contrary, it will be seen that two very severe falls of hail were experienced in the same place within a few days of each other, the one completing the wreck the other had begun. In a climate like ours it is simply foolhardiness to calculate on such chances of coming or not coming. In short, as much injury may arise from hail as from fire, and the farmer who does not insure himself against either must expect but little sympathy when his turn comes. How will others think of him who had no thought for himself?

THE HORSE SHOW AT ALENÇON, FRANCE.

The month of May seems to be the month of gatherings on both sides of the Channel. In England, Exeter Hall is characterized by its religious and philanthropic meetings. In France, agriculture holds its assize with all the pomp and splendour which official encouragement and national taste can bestow.

Accustomed as we are to the unrivalled magnificence of our own shows in point of number and excellence of entries, and the high renown of our rival competitors, the chief attraction for an Englishman in our neighbour's exhibitions, is the interesting study of symptoms of progress, which occasionally greet the eye. On the whole, with some rare exceptions, the generality of the animals exhibited are few in number and inferior in quality, although there are now to be seen in every district of France several beautiful specimens of English pure breeds, that show no marks of degeneracy under the influence of the mild and kindly climate of France.

During the month of May, and almost simultaneously all over France, there are held what are called *regional* or district agricultural exhibitions, under the control of the Government inspectors of agriculture. The first of these shows took place at Versailles, in 1850, and it being the only one for the whole of France, was styled *general*. It was very successful, and encouraged the French Government to extend similar exhibitions to various parts of the empire.

In 1851 there were three—one at Aurillac, the other at Toulouse, and the other at St. Lô. They were called *regional* from their comprising several departments within their sphere. There was also in that year another general show at Versailles.

In the year 1852 there were seven district shows, with another general one at Versailles, a place which was thus selected for this solemnity, on account of the Agricultural Institute, so ably directed by M. de Gasparin, and which had been established in a portion of the Palace grounds comprising the Government farms in the neighbourhood.

In 1853 there were eight district shows, the general one taking place at Orleans, the Versailles Agronomic Institute having been abandoned.

In 1854 there were only seven exhibitions, and no general one, but it was determined this should henceforth be held in Paris.

In 1855 there were eight district shows, and one at Paris, in the Champ de Mars, called Universal, from the admission of English animals and implements to compete for prizes.

In 1856, as our readers will recollect, the Universal Exhibition assumed immense proportions, as the whole world was invited to compete, special prizes being offered for all breeds, all nations. Besides this remarkable exhibition, there were also eight district ones, in various parts of France, as in the preceding years.

In 1857 another Universal Exhibition was announced; but not proceeded with. There were, however, eight district shows.

This year the number of the *regional* exhibitions has been increased to ten. Next year it is not improbable there may be another universal one; or if not next year, at least in 1860, when the number of district shows will be further increased to twelve.

To give an idea of the progress manifested by these Exhibitions, we transcribe a paragraph lately published by the *Moniteur*, showing the increase in the entries of cattle, implements, and produce for the year 1858 as compared with 1857.

	1857.		1858.
Bulls and cows	1,368	..	1,650
Rams and lots of ewes	764	..	921
Boars and sows	272	..	511
Lots of poultry	260	..	648
Implements	1,001	..	2,126
Produce	1,300	..	2,003

The district show held at Alençon on the 17th ult. was especially interesting, from two features which no other in France could boast of. The first was one of the most magnificent shows of horses that have ever been held in this country; the other, a new competing exhibition of the famous Lonrai herd, belonging to M. Le Comte de Seraincourt. This herd is composed of nearly all the first-prize animals in all the classes of the Universal Exhibition of 1856, and their produce. This wealthy nobleman spared no treasure that we might gratify his praiseworthy ambition to possess the best animals in all European breeds. The Universal Show of 1856 offered to him, no doubt, the very suggestion of his desire, and a fitting opportunity of gratifying it. At all events, the result of his lavish expenditure is a collection of animals, a kind of zoological museum, which has not its like in the whole world, and which offers, from its comparative merits, one of the most curious and instructive sights which an agriculturist can behold. It is like Noah's ark. We have serious misgivings as to the practical result of this mixture of breeds; but, nevertheless, the exhibition is a most interesting one, and is well worth the journey to Alençon—especially as the pleasure of such a journey is further enhanced by the hospitality of the owner, or, in his absence, the courtesy and polite attention of his steward. We may state that the Count de Seraincourt has also at Lonrai a beautiful stud of thorough-bred English horses, which would do honour to any of our sporting noblemen.

It had for a long time been a subject of regret and complaint on the part of French agriculturists, that agricultural horses were not admitted in district shows, and that Government, so liberal in their prizes for cattle, offered none for the breeding of farm horses. The district of Normandy, so celebrated for its horses, was especially loud in its grumbling at this exclusion. The department of Orne, the capital of which is Alençon, has, however, on this occasion, given a noble example to the other French districts, by getting up an independent show for horses, and their appeal to the breeders of Normandy has been most enthusiastically responded to. The beautiful promenade outside the town, known as the Fair Field, was most tastefully arranged for the reception of the animals. Stalls of an elegant construction, covered with blue and white awnings falling in front like curtains, were erected under the trees all round the promenade. At night, on the curtains being closed, the stalls were transformed into comfortable stables, and during the day they were gathered each side in graceful folds, thus adding artistic effect to comfort.

There were on the catalogue nearly 400 entries; but we apprehend there were a good many defaulters. Still if there was a little disappointment in the number, that was amply redeemed by the extraordinary merits and beauty of the animals exhibited. The horses were divided into many categories—viz., thorough-bred stallions, and mares with or without foals; half-bred, of various degrees and races; the pure country breeds, among which we greatly regretted to see so few pure *Percherons*—those famous grey horses, which being more and more crossed by half-bred stallions, are rapidly disappearing from the country. The half-bred horses were truly commendable. In colour, coat, spirit, power, and symmetry, they were really good; and an English agriculturist, Mr. W. Fisher Hobbs, who was present,* expressed a similar opinion.

On the whole, it is very obvious that the introduction of English blood into some of the best breeds of French horses has been attended with the most complete success. This element of perfection, skilfully applied by the Norman breeders, has certainly become a source of great prosperity to the beautiful province of Normandy. The rich pasture land of the *Vallées d'Auge* renders that district pre-eminently suitable to the breeding of all kind of animals; no wonder, then, that English blood, implanted upon so well a soil, and fostered by so many favourable local circumstances, should have produced such gratifying results.

Should this show take place again next year at St. Lô, we think it will be well worth the while of our English horse-breeders and agriculturists to avail themselves of the facilities of travelling which now exist, and pay it a visit. Clever and experienced as they undoubtedly are, they might take a leaf or two out of the books of their Norman kinsmen.

HORSES' COATS.—Lately going to the country to spend a few weeks with a friend of mine, I drove a very handsome horse, and a good 'un—but was always annoyed about his coat, as it was more like a lot of bristles than a horse's smooth skin, and all the grooming he could get "would'nt do it no good." My friend, who is a great horse-breeder and fancier, made me try giving him a few carrots every day out of my hand, saying that he would have a good smooth coat in three weeks—and he was right, for in that time my horse had a beautiful, sleek, glossy coat, and all from eating a few carrots daily. He tells me it is infallible.—*Porter's Spirit.*

CALENDAR OF AGRICULTURE.

In some places the turnips are sown in the first part of this month, as the fly is not so prevalent as in June, and a later sowing is not so apt to be mildewed. Sow the turnips as directed last month. Horse and hand-hoe potatoes and beet, repeating the processes till all weeds are completely destroyed. Morton's expanding scuffler takes a good hold of firm-bottomed lands, and by expanding on the principle of the parallel ruler, the face of the cutting knives always point straightforwards. It is drawn by one horse, and suits any soils, light or firm. The young plants derive much benefit from the frequent stirrings of the intervals of the drills, and most during dry weather: it causes evaporation of moisture, which is imbibed by the leaves.

Proceed with the working of clay fallows by ploughing, harrowing, and rolling; pick off every weed and stone, and get ready the dung and lime that are to be applied.

Proceed with draining, both on grass lands and on fallows. Finish the latter as quickly as possible, in order not to impede the working of the land. The state of grass is much more preferable: the work is done with cleanness and neatness, which amply compensate for the hardness of the ground in digging. But the proper course of all drains should be marked in winter, when every wetness shows itself.

Wean the latest lambs, and give them the best encouragement of pasturage. Put mares to the stallion regularly.

Attend that the pasture fields have a supply of water, and see that no gaps are continued in the fences.

Apply the contents of the dredging-box to the sheep, to prevent the maggot fly depositing the larvæ. Dress clean the posterior parts of the animals from the adhesion of excrements.

The hay season will be ended this month; make dry and carry the grass quickly; build into long stacks, lay it lightly together, and allow it to settle by its own weight. It is a mistake to tread it firmly together. Pull nothing from the sides of the ricks till well settled, then dress it into any form, and thatch it without delay. To get up the hay to a high rick when building, use a scaffold raised on four upright posts, resting below on a four-wheeled platform; and elevate and depress the scaffold by means of pulleys to any height that may be required; lay some loose straw on the extreme top of the rick till it be thatched. When hay is damaged by rains, mix in the ricks a portion of salt, as has been directed. When the building of ricks is stopped for a day or two, spread over the rick a water-proof tarpaulin cloth, which will defend it from rain; remove the tarpaulin early in the morning, to permit the sweating of the grass to escape. To defend from day showers of rain, suspend over the rick a light cloth by means of a rope passing the length of it, and attached at each end with an upright pole.

Harvest will commence this month in early localities. Early peas, barley, and rye will be first cut; tie the barley and rye into sheaves, and set them in shocks of twelve each; lay the peas in small heaps, to be frequently turned. Carry the grains quickly when dry: have rick-stands ready, and barns cleared out.

AGRICULTURAL REPORTS.

GENERAL AGRICULTURAL REPORT FOR JUNE.

During nearly the whole of the month we have had an unusually high temperature, and very little moisture has fallen in any part of England. Everywhere, the wheats have progressed with wonderful rapidity, and the fields now present the appearance of a very large growth of corn; indeed some estimates come fully up to last year's yield, both as to quantity and quality. Had there been the usual fall of rain, we should no doubt have had to write equally favourable as respects spring corn; but the want of moisture has checked the growth of barley, oats, beans, and peas, and we are apprehensive that their produce will be a very moderate one. In many districts, especially upon the light lands, the two latter articles are suffering severely from insects, so much so that all hopes of a crop have been abandoned. We assume, therefore, that we shall have new wheat on offer in Mark Lane by the last week in July, that the produce will be an abundant one (since it must be admitted that the crop generally never presented a finer or more promising appearance), and that spring corn will to some extent prove less in quantity than in 1857.

These remarks naturally lead to some reflections as respects the future state of our markets. We shall, it is generally admitted, commence the consumption of the new crop of wheat with the largest quantity of old corn on hand, both in barn and in stack, almost ever remembered; we shall continue to import foreign produce extensively; and we are still labouring under the disadvantage, so to speak of a great pressure of continental wheat upon our markets. Admitting that consumption is steadily increasing, our farmers have to contend against forced sales of produce arising from the want of means amongst the foreign growers. And this is especially the case in the Baltic ports and in the far west in the United States, where there is still an immense amount of food on hand. No doubt there must be a limit to the downward movement in the value of wheat; but ere we can predict improving markets and greater confidence amongst the home growers and the continental shippers, we must see a revival of speculation, an accumulation of supply in our warehouses, and a less amount of anxiety on the part of the importers to realize at almost any sacrifice; but another heavy crop of wheat in the great districts of the world—an event which may be safely predicted—would lead to further depression and loss. We have stated that our farmers hold very large quantities of wheat for the time of year. Fortunately for themselves they have, for some time past, thrashed out very moderate supplies, or we should have had prices considerably lower than they now are. However, the quotations now require regulation, that is to say, the supplies of produce on offer should be governed by the demand, and the exercise of more discretion and judgment will be absolutely necessary on the part of the foreign houses than hitherto, or we shall have wheat selling at a much lower range than barley. We do not, however, apprehend any permanent fall in the value of either barley, oats, beans, or peas, because we think that the time has now arrived when a fair estimate may be made of the yield of those articles, and which estimate is in favour of a very moderate—perhaps we may say a limited—growth. Besides, we must bear in mind that home stocks are almost wholly exhausted, and that our chief consumption must be met by foreign importations.

The hay harvest has been pretty generally commenced around the metropolis. The produce may be considered a fair average one; but it is certainly one-third less than last year, which, it will be recollected, was the largest growth on record. There is still a large supply of old hay in stack but the quotations rule low and the demand has not improved. The great abundance of green crops has checked any upward movement in price; but our impression is that fine old hay will become dearer as the year advances.

The crop of swedes and mangels is coming up, and is quite as forward as in the general run of years; but like spring corn, it stands much in need of moisture. Last year's growth has lasted remarkably well, notwithstanding that the demand from the cowkeepers and others has been very extensive.

The falling-off in our exports of raw spirit has formed the subject of much discussion of late. The quantity exported in the first five months of 1857 was 2,796,517 gals., but in the same time this year it has been only 525,446 gals. This great decrease is to be attributed chiefly to the cessation of the temporary cause which led to so great a demand for British spirits in France, owing to the failure of the wine crop. To France alone, the exports in the above period in 1857 amounted to 1,926,202 gallons, and in the present year they are reduced to 25,774 gals., or from a value of £429,933 to that of £3,658. This great falling-off in the shipments must lead to a considerable decline in the consumption of barley in our distilleries, and have the effect of checking any rapid upward movement in the value of distilling qualities. For some time great complaints have been made respecting the state of the malt trade. At Mark Lane and in the large provincial markets, malt has continued heavy, and depressed rates have been the consequence, even though supplies have not been large, and though the consumption of malt liquor has been favoured owing to the extreme heat of the weather.

Notwithstanding that there has been no actual excess in supplies, compared with some previous seasons, the cattle trade has been far from active. Prime sheep and lambs have mostly sold at what may be termed full quotations; but other kinds of stock have ruled somewhat easier in price.

From nearly all parts of the United Kingdom, our accounts respecting the appearance of the potato crop are very favourable. The haulm is looking healthy, and, as yet, the tubers show no signs of disease. It is, however, far too early to form anything like a correct estimate of the aggregate produce. The stocks of old potatoes are now exhausted; and new qualities are in request at from 6s. to 18s. per cwt.

The demand for most kinds of English wool has been comparatively active, and prices have had an upward tendency. The advance is likely to be maintained, as trade in the manufacturing districts is improving, and as the stocks held are very moderate. In the value of foreign and colonial wool, little or no change has taken place. The stock of the latter now on hand is over 62,000 bales, against 40,000 bales at the same period last year.

In Ireland and Scotland the demand for wheat, barley, oats, and all other produce has continued very inactive, at almost nominal quotations. The shipments of oats from Ireland have been trifling; but those from Scotland have continued large for the time of year.

REVIEW OF THE CATTLE TRADE DURING THE PAST MONTH.

Seasonably large supplies of both beasts and sheep have been on sale in the Great Metropolitan Market throughout the month; but, for the most part they have appeared in but middling condition, consequently there has been a wide difference between the value of the primest and the most inferior breeds. Notwithstanding that very little country-killed meat has been received up to Newgate and Leadenhall, in consequence of the hot weather, the trade has been rather inactive; indeed, the only stock which has commanded what may be termed a steady demand have been the primest old sheep and most breeds of lambs, both of which have realized extreme, in some instances very high, rates. Some of the former have produced as much as 5s.—out of the wool of course, and some of the latter over 7s. per 8lbs. The consumption of meat in London has, we think, equalled most past corresponding seasons, and we see no reason to look forward to what may be termed low quotations: nevertheless, it can scarcely be presumed that we shall have a return of a period of high prices—so dangerous both to the graziers and butchers in the long run,—because our impression is, contrary reports notwithstanding, that there is now a large available supply of stock in the country. True, we see no prospect of large importations from the continent, even though the demand for France, both in Holland, Belgium, and Spain, has fallen off; but most of our correspondents state that our leading districts are well stocked for the time of year. There is, however, some deficiency in the north of Scotland, caused by the large numbers of beasts which have been sold for the south from time to time, and which to some extent have checked the supplies usually forwarded to England.

The "Norfolk" season for beasts is now drawing to a close, and that from Lincolnshire has just commenced. As yet, only about 1,000 shorthorns have made their appearance in the Metropolitan Market from the latter county;

but they have reached us in first-rate condition. The favourable season for rearing stock during the last six months, and the abundance of food, lead us to conclude that we shall receive a larger number of finer animals than usual between this and the end of December.

The imports of foreign stock into London have been on the increase, or as follows :—

Beasts	1,656	head.
Sheep	11,567	„
Lambs	2,148	„
Calves	1,909	„
Pigs	117	„
Total	17,720	„

The total arrivals in June, 1857, amounted to 13,551, and in the same month in 1856, to 10,136 head.

The following figures show the supplies of each kind of stock—English, Scotch, Irish, and foreign—exhibited in the great market :

Beasts	18,492	head.
Cows	583	„
Sheep and lambs	144,280	„
Calves	2,972	„
Pigs	3,115	„

COMPARISON OF SUPPLIES.

June.	Beasts.	Sheep and Lambs.	Calves.	Pigs.
1855	19,173	125,570	2,209	3,180
1856	17,896	112,110	1,839	2,740
1857	20,063	108,480	2,404	2,125

Beef has sold at from 3s. to 4s. 6d. ; mutton, 3s. 2d. to 4s. 10d. ; lamb, 5s. 8d. to 7s. ; veal, 3s. 8d. to 5s. ; and pork, 3s. to 4s. 4d. per 8 lbs. to sink the offal.

The supplies of home stock have been thus derived :—Norfolk, Suffolk, Essex, and Cambridgeshire, 12,700 ; other parts of England, 1,800 of various breeds ; Lincolnshire, 1,000 shorthorns ; and Scotland, 179 head. Scarcely any arrivals have taken place from Ireland ; but nearly 2,000 lambs, in fair condition, have reached the market from that country.

Newgate and Leadenhall markets have been scantily supplied with each kind of meat, which has sold slowly on lower terms. Beef, from 2s. 10d. to 4s.; mutton, 2s. 10d. to 4s. 4d. ; lamb, 5s. 4d. to 6s. 6d. ; veal, 3s. 6d. to 4s. 6d. ; pork, 3s. to 4s. 2d. per 8lbs., by the carcase.

SOUTH LINCOLNSHIRE.

We have never had the gratification to present a report so truly favourable and satisfactory as we have now the pleasure to do. Throughout the month of May up to the present time, with but a trifling exception, we have been blessed with unusually favourable weather, and the past three weeks have been surpassingly fine. Such a season for the growth of grass and perfecting of the corn crop was scarcely ever known. These are most splendid, and at present all standing up, and looking strong and healthy. We have heard of some failure in the bean and pea crop from dry heat, occasioning a loss of flower, but we believe it is partial ; however, it is now just the time when such injury is likely to take place, but we have not yet seen an instance. Many crops drooped sadly about the 14th and 15th inst., but we observed their recovery in a day or two ; still we believe loss of flower would ensue to some extent. We had written thus far, when we were called away for a short time. The past day or two have been very fine, and not having had time to examine our crops again, we are now compelled to repudiate in a great degree what we had written as above, only four days ago, as relates to the crops. The wheat crop is certainly progressing too fast to be safe, and premature ripening, with its defective yield and bad quality of grain, may be the result. The oat crop is coming into shag before attaining its requisite growth. The barley crop is dropping its bottom flag or leaves much too fast, and is turning pale. Beans are partaking injury from drought, heat, and green dolphin. Peas are suffering very seriously from the same cause, the dolphin increasing very fast. These pests were not perceived in this neighbourhood before Monday last. A neighbour estimates his crop at three sacks per acre instead of ten or twelve ; but this is excessive. At all events a comparatively severe loss must ensue from what were our expectations of a most splendid flowering. The demand for wool was last week active ; but has somewhat abated : as growers proved willing sellers, the buyers were soon, in a great measure, supplied. Beef and mutton keep up in price satisfactorily. Potatoes are looking well, and a large breadth growing. Pigs and pork are the greatest drug we have in the market. The stock of pigs is soon made up by breeding, when a high price prevails ; we are just now overdone. Cattle and sheep are doing tolerably well, but are very restless from heat and the attacks of innumerable flies. Mangolds and turnips require rain. Hay plentiful and good.—June 23.

NORTH NORTHUMBERLAND.

After studiously looking at the voluminous agricultural reports that have been published during the last six weeks in favour of the growing crops, we must succumb quietly to the generally-subscribed opinion ; and truly thankful would we feel if we could from this district see a like flattering prospect. Taking the wheat first as our most valuable cereal, we calculate a full average breadth—one-third a very fine full crop, one-third middling, and one-third not half planted. From local observation we hazarded such opinion in our last report, and have subsequently had ocular proof of its correctness. Barley generally good, but a less than usual breadth sown. Oats a full breadth, but very various. Beans brairded full and strong, but owing to continued drought, will cut short : they came too early into bloom, and already show symptoms of a short stunted crop. Potatoes have made a full fine braird, and look as well up to this day as could be wished. Seeds : Hay all ready for the scythe, and part cut ; a very thin poor crop generally. Where grazed, very thin, with a great want of clover, which the frost in April all but annihilated. We allude more particularly to the broad-leaved red clovers ; but where intended for pasture, a strong admixture of white is generally sown ; and so far this variety has made only puny growth. Old meadows either grazed or laid up for hay are an agreeable exception, being richly clothed with the natural grasses, and affording a full bite for fattening stock, which so far are healthy and doing well, with one solitary exception, viz., a failure in supply of pure water. Nor can other be expected, when we look back to the last *seven* months, without a fall sufficient to fill the reservoirs. The watery element in town and country is being husbanded with economy, and on more than isolated occupations at this early season already creates some alarm. In atmospherical phenomena : We had a fall of cold rain on the 18th and 19th of May, which capped the high mountains *white*. The following week dry, cold, and withering. June came in dry, with great forcing heat. A heavy thunderstorm on the 3rd, which battered down the newly-finished turnip drills, and left them completely crusted. Very hot sultry days succeeded, and again on the 16th and 17th thunder, rain, and hail. Many casualties occurred in this locality, without loss of human life. On one farm four horses fell at one stroke, one on another ; sheep and lambs on other places. The weather, with very few exceptions, has been favourable for field operations, enabling the cultivator to act vigorously in clearing land and sowing turnips, which over the breadth of the county were earlier brought to a finish than for many years past ; yet, owing to the sudden downfall, and hot dry following days, the plant has been completely either destroyed by the beetle or encased in the soil. Rolling, scarifying, and re-sowing to a very great extent has been resorted to, and up to this day over only portions of our freest soils can we report a full plant, while over by far the largest breadths sown, not a plant is yet visible. To return to the wheat. All the early sown is now out into full ear, with fine, clear, cool atmosphere for blooming. What was sown in December and January decidedly thin, and of various growths, coming into ear ; sown in February or March, better planted, and with fine weather may yield a good crop. More of this next month. —June 25.

REVIEW OF THE CORN TRADE

DURING THE PAST MONTH.

The month just past has been a further display of the extraordinary changes that have hitherto characterized the present year. After many prognostications of a late season, from the long continuance of dry cold weather in the spring, a sudden outburst of summer came upon the country as June opened, which has continued with great sultriness, the only changes consisting of occasional storms and some fresh breezes towards the close. The wheat plant, therefore, which was getting too rank in many places, was forced into ear in considerable quantities by the second week, and with slight exceptions has had an unusually favourable time for blooming. The United Kingdom, should no disasters happen, again has the promise of an excellent crop. The prospects as regards spring corn are not, however, so favourable. The overpowering heat has been rather too much for barley and oats, while beans and peas have gone back, the former not setting well, and the latter being small in size, and much infested with the dolphin. A great deal of hay has been secured in the finest order: the yield in some forward pieces is excellent, but there was scarcely time for the formation of a strong bottom in backward localities; so, little beyond an average in such localities can be expected. Potatoes as yet are doing well, and roots generally in deep friable loam; but a fall of rain would be very serviceable, especially for the light lands. With these altered appearances for wheat, the markets, which were becoming firm, have been neglected by millers, though only moderately supplied, and prices have not been sustained; still the easy rates lately being realized did not permit much decline, and the general depreciation has not exceeded 1s. to 1s. 6d. per qr. Many holders have refused accepting this abatement, preferring to take the chances of harvest time, especially as in foreign parts there is not an equal promise of plenty, and stocks of old, notwithstanding a fair importation, are but moderate. On the continent, the southern latitudes have found insufficient rain for even the wheat plant, so that Italy, Spain, and some parts of France and Belgium are not likely to yield bountifully; prices, therefore, have fluctuated with the weather, especially in Spain and France, closing with some decline, after considerable excitement. Spring corn has in these places suffered more, but the crop most affected has been that of rye in Holland, Belgium, and Germany, where it is the chief sustenance of the poor, while maize in Piedmont and several other places is despaired of. Rye has been cut in the south of France, and wheat is expected to begin in some districts about the 12th of July, which is nearly a fortnight before the usual time. In Algeria the soft wheat is mostly harvested: though not a great crop, the quality by specimens lately sent on to France is fine and heavy, say about 66 lbs. per bushel; but the hard will be deficient, as well as all other cereal produce. Accounts, till of late, were favourable from America; but a set-in of wet in the west has produced some degree of alarm there, the wheat plant having become rank, and therefore liable to be seriously laid. The land has also by the same means been put out of course for the planting of Indian corn, a good deal being yet to sow on 5th of June last, in Indiana and Illinois, so that it will not be prudent to calculate on the safe gathering of the general harvest, and (as repeatedly noted) our resources are limited to the fine crop of last year for stocks: the least mishap would make a complete change in the markets.

The following extracts will show the different state of foreign markets in the value of wheat. In Spain, prices were very unsettled; but at Santander first quality flour sold at 44s. 9d., which is 4s. per sack above our top town price. In Paris, quotations for fine quality wheat were 26 f. to 29 f. per hectolitre and half, equal to 45s. At Antwerp, in consequence of the heat, wheat was quoted 49s. 3d. to 51s. 6d.; Rhine red at Amsterdam, 44s.; Polish mixed, to 54s. 6d. The quotations at Stettin were 44s. 8d, and Dantzic prices to 47s. for high mixed. At Odessa, where there had been a good trade, and the neighbourhood looked premising as respects the crops, Polish wheat had sold at 42s. 9d., Ghirka at 44s. Saidi wheat, for delivery at Alexandria in September next, was held at 29s. 4d. Romagna wheat at Trieste sold steadily at 41s. 6d. Soft wheat of this year's produce brought 44s. at Algiers. At Leghorn, Romagna wheat was quoted 44s., at Genoa 50s. 6d. In Canada, though the spring was backward, a set-in of fine weather was rapidly changing the face of things. Spring wheat there was quoted 3s. 4d. to 3s. 9d. per bushel. At New York supplies were moderate as yet, the prices not having been satisfactory: quotations were steady, there having been some export to this country. Chicago spring was about 29s. per qr., red Michigan 35s. 6d., white 41s. 3d., Canada

39s. 6d. A small lot of the new crop from the southern state of Georgia had sold at a high price, viz., 54s. 6d. The bulk of wheat in the west was of inferior quality, and the low value made holders reluctant to send on, which it was thought they would not do freely without monetary pressure.

The first Monday commenced on good supplies, both English and foreign, with a moderate arrival from Kent and Essex in the course of the morning. This, together with the fine forcing weather experienced, produced great dulness, and the sales eventually made were at a reduction of 1s. to 2s. per qr. Foreign, though not forced, was decidedly cheaper to sell to the same extent. The country markets were partly influenced by London reports, and generally gave way; Boston, Spalding, Lynn, Newark, and Bristol, all yielded 1s. per qr.; Louth, Melton Mowbray, Portsmouth, and some other towns were down 1s. to 2s. per qr. Liverpool, on Tuesday, was 2d. per 70 lbs. easier, and Friday confirmed the previous decline.

The second Monday had still more liberal supplies of foreign, with nearly as much English, though the near counties sent a diminished supply. Nothing, however, could prevail with millers to induce purchases, with such a splendid commencement of the blooming time, and again prices receded 1s. to 2s. per qr., with but a limited placement of samples. The foreign trade was also in sympathy with home-grown samples, and to sell in quantities was impossible with such a favourable time, the abatement where cargoes were forced off exceeding the reduction on English parcels; but generally holders resolved on landing, stocks in granary being low, and the qualities on sale in a great proportion fine and fit for mixing. In the country there was not an equal difference. Hull, Leeds, Birmingham, Norwich, Newcastle, and some other places were dull, but scarcely lower. Newark, Boston, Spalding, Gloucester, and Bristol only reduced the rates 1s. per qr., but Louth and some few places agreed with the London report. The first market at Liverpool was nominally as on the previous week; and the second was more decidedly dull, and retail in the character of the demand.

The third Monday came, foreign supplies continuing free, and English, from occupation in haymaking, very small. Kent and Essex, as though disinclined to make sacrifices, presented but few samples throughout the morning, and factors were therefore unwilling to make lower offers. Millers also being short in stock, were content to supply their necessities at former rates. The foreign trade, though very calm, was fully as dear. The country markets generally were without alteration; but several markets were 1s. per qr. dearer, influenced by the scanty supplies which were noted everywhere. Spalding, Boston, Lynn, Derby, Nottingham, Lincoln, and Rochester, all made 1s. per qr. improvement; but the greater number of places only reported former prices. Liverpool, on Tuesday, found a very heavy retail trade; but Friday's report was rather improved as it respects prices.

The fourth and last Monday had plenty of foreign wheat; but the supplies from Kent and Essex were quite trifling, the millers were therefore compelled to pay 1s. per qr. advance in their purchases, and about the same improvement was realized in good foreign cargoes.

The imports into London during the four weeks of June were 17,128 qrs. English and 90,449 qrs. foreign. The imports into the United Kingdom for May were 503,567 qrs. wheat and 414,954 cwt. flour, against 196,278 qrs. wheat and 189,172 cwt. flour in May, 1857. Since May the weekly imports have increased. The averages throughout the kingdom, commencing at 44s. 8d., closed at 43s. 10d. per qr. The London returns show a decline of 10d. per qr., commencing at 47s. 5d. and ending at 46s. 7d. per qr.

The flour trade throughout the month has been remarkably steady, town quotations not having varied: Norfolks gave way on the first Monday 1s. per sack, and on the third Monday recovered the decline, finishing at 30s. 6d. to 31s. per sack. So little American has been in the market, that prices could hardly be quoted, and the imports from France have lost Monday, the rates at Paris being 36s. 2d. per sack for the four marks, which on the London market were scarcely worth 36s. per 280 lbs. English. The imports for June were 60,751 sacks from the country, 5,533 sacks chiefly French, with 3,620 barrels from America. The want of water has been felt by country millers as well as those in France, and this has considerably limited the supplies in both countries.

The barley trade has been steady through the month, the business being almost limited to feeding and grinding qualities. The stock of English appears, by the scanty arrivals as well as reports from the country, to be nearly run out, and a good portion of the foreign has been of a light description from the Mediterranean. Some decline was noted on the first Monday; and where cargoes have been forced off or out of condition, there has been some concession to get cleared; but the low rates, 23s. to 24s. per qr. for 50 lbs. per bushel barley, place this grain below the value of oats, and almost secure its rapid consumption. The quantity received in the port of London during the four weeks, in English sorts, were 1,036 qrs., in foreign 22,433 qrs.

Malt during the course of the month has found but a dull dragging sale, and the price of the best Ware has receded 2s. per qr., leaving its value 67s. per qr.

The oat trade has given way during the month about 2s. per qr., the heaviest fall being on the first Monday, when the smallest arrivals were reported; but there were many cargoes that subsequently got up to market, and added to the then depression. Subsequently they were recovering, but the last Monday again was easier, especially in Russian qualities, which greatly predominated. Some demand having sprung-up for the near foreign ports, we can hardly look for much easier rates before the new crop is gathered, as stocks in the country run short, and our Scotch and Irish supplies have almost ceased.

During the four weeks there were 629 qrs. English received, 1,026 qrs. Scotch, 1,035 qrs. Irish, and 209,909 qrs. foreign.

Beans and peas have neither been in quantities of home-growth or foreign; but, with the limited inquiry always obtaining at this period of the year and relatively high prices, they have maintained their value fully, closing with 1s. per qr. advance. The unfavourable reports respecting the appearance of some pieces, from the great heat, have made holders firm. The receipts through June for London have been in beans 970 qrs. English, 3,419 qrs. foreign: in peas 154 qrs. English, 6,375 qrs. foreign.

The linseed trade has been very firm all through the month, in consequence of a free export demand, but there has been no advance. The imports into London for the four weeks were 17,320 qrs. The exports 18,673 qrs. Cakes have found a tolerably free sale at full prices.

The seed trade has been perfectly calm. Unfavourable reports have come from the continent respecting the crops of cloverseed, and there has in these parts been a rise in prices; but the losing character of the last season has made speculators very cautious here, especially as our own crops are considered to give a fair promise. The low rates, however, to which prices of red sunk, dispose holders to rest on their stocks, so that little has been offering on the market, either red or white, and the rates of the former are rather improved. Canaryseed, from its scarcity, has kept very high-priced; but as soon as the new crop is harvested, which looks uncommonly fine in Kent and Essex, it is reasonable to expect a great reduction from the present high quotations—90s. to 98s. per qr. No tares have been left over. White mustard has preserved a high value, and brown continued in neglect. Rapeseed has improved from the failure of the crops in some parts of Europe. Hempseed has remained steady. Coriander and carraway have found a retail sale, with scarcely any change of price.

CURRENCY PER IMPERIAL MEASURE.

	Shillings pe	Quarter.
Wheat, new, Essex and Kent, white 41 to 49......red	38 to	44
Norfolk, Linc. and Yorks., red	38	43
Barley, malting .... — to – .... Chevalier.....	—	—
Distilling .... 29 31.... Grinding	24	29
Malt, Essex, Norfolk, and Suffolk...... 55 63 fine	65	67
Kingston, Ware, and town made.... 55 63 ,,	65	67
Brown 51 53	—	—
Rye .... — —	27	29
Oats, English, feed ...... 21 25...... Potato	26	33
Scotch, feed .... 22 26 28.. Potato......	26	32
Irish, feed, white .... 21 23 fine	25	31
Ditto, black .... 21 23 ,,	—	24
Beans, Mazagan .... 34 37...... Ticks	35	36
Harrow .... 35 38...... Pigeon......	39	44
Peas, white boilers .. 40 46..Maple .. 42 46..Grey	40	44
Flour, per sack of 280lbs., Town, Households..32s., fine	36	40
Country .... 31 33...... Households..	31	35
Norfolk and Suffolk, ex-ship	29	31

FOREIGN GRAIN.

	Shillings per	Quarter.
Wheat, Dantzic, mixed..43 — high do. — — extra	—	51
Konigsberg ....40 46 ,, — —	—	—
Rostock ....43 — fine.... 46 —	—	—
American, white....41 49 red.... 40 45	—	—
Pomera., Meckbg., & Uckermrk, red 40 45	—	—
Silesian, red ....40 43 white	41	45
Danish and Holstein	38	43
Russian, hard..37 41 .. French..40 43 white	40	45
St. Petersburg and Riga	38	42
Rhine and Belgium	—	44
Barley, grinding ......21 27 .... Distilling....	29	30
Oats, Dutch, brew, and Polands..21 27 Feed........	21	24
Danish and Swedish, feed . ..22 24 Stralsund....	22	25
Russian	20	21
Beans, Friesland and Holstein	34	37
Konigsberg........34 38 Egyptian....	34	36
Peas, feeding........40 42 fine boilers..	42	45
Indian Corn, white........34 35 yellow......	34	35
Flour, per sack..........French 32 36 Spanish	—	—
American, per barrel, sour....18 21 sweet.......	22	25

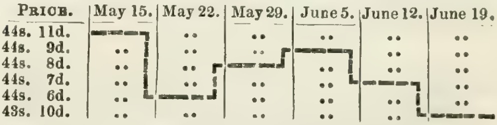
IMPERIAL AVERAGES.

For the last Six Weeks:	Wheat. s.	d.	Barley. s.	d.	Oats. s.	d.	Rye. s.	d.	Beans. s.	d.	Peas. s.	d.
May 15, 1858	44	11	35	0	25	8	35	7	40	9	42	1
May 22, 1858	44	6	34	9	26	1	32	8	41	6	42	7
May 29, 1858	44	8	34	3	26	2	33	9	41	8	42	8
June 5, 1858	44	9	33	7	26	5	31	0	42	5	43	3
June 12, 1858	44	7	33	5	26	0	33	0	42	10	44	3
June 19, 1858	43	10	30	7	26	10	26	0	42	5	43	4
Aggregate average	44	6	33	7	26	2	32	0	41	11	43	0
Sametime lastyear	58	7	41	3	25	8	39	11	44	0	41	10

COMPARATIVE AVERAGES—1858-57.

From last Friday's *Gaz.*		s.	d.	From *Gazette* of 1857.		s.	d.
Wheat......	77,592 qrs.,	43	10	Wheat......	102,780 qrs.,	60	1
Barley......	1,099 ..	30	7	Barley......	1,769 ..	38	11
Oats........	3,738 ..	26	10	Oats........	9,011 ..	26	7
Rye	134 ..	26	0	Rye	33 ..	40	6
Beans......	2,574 ..	42	5	Beans......	3,469 ..	44	10
Peas........	119 ..	43	4	Peas........	389 ..	42	8

FLUCTUATIONS IN THE AVERAGE PRICE OF WHEAT.



PRICES OF SEEDS.

BRITISH SEEDS.

Cloverseed, red —s. to —s., extra —s., white – s. to —s.
Trefoil .... —s. to —s.
Tares, Winter, new, per bushel ......6s. 0d. to 7s. 0d.
Tares, Spring, per bushel .... 0s. 0d. to 0s. 0d.
Mustardseed, per bush., new 17s. to 25s., brown 13s. to 15s.
Coriander, per cwt........................ 20s. to 26s.
Canary, per qr........................ 80s. to 97s.
Linseed, per qr., sowing —s. to —s...crushing 65s. to 67s.
Linseed Cakes, per ton .... £9 0s. to £10 0s.
Rapeseed, per qr........................ 70s. to 72s.
Rape Cake, per ton........................£5 10s. to £6 0s.

HOP MARKET.

BOROUGH, MONDAY, June 28.—We have no material alteration in our market since our last report. The demand is very limited, and the accounts received from the hop plantations are generally favourable.—MEASE AND WILD, Hop-factors.

WORCESTER, (Saturday last.)—The reports from the plantations vary. On the clays the bine continues to grow, but does not clear from the blight. The gravel bottoms are beginning to knock up. Duty, £10,000 to £12,000.

MAIDSTONE, June, 24.—The hop bine in this neighbourhood grows rapidly, and generally looks healthy and of good colour. The weather is very favourable thus far. In some grounds there is an increase of fly, while other plantations where fly golding is pretty plentiful are more clean; opinion goes in favour of a heavy duty. The reports are generally good.—*Sussex Express.*

POTATO MARKETS.

BOROUGH AND SPITALFIELDS, LONDON, MONDAY, June 28.—Since Monday last the arrivals of home-grown Potatoes have been very moderate, for the time of year. The imports have amounted to 10,500 baskets from Rotterdam, 1,240 from Schiedam, 1,819 from Dunkirk, and 15 tons from Jersey. The demand is steady, at from 6s. to 16s. per cwt. In old Potatoes nothing is doing.

COUNTRY POTATO MARKETS.—YORK, June 19: Potatoes sell at 10d. to 1s. per peck, and 3s. 6d. to 3s. 10d. per bushel. RICHMOND, June 19: Potatoes, 4s. 8d. per bushel. MANCHESTER, June 22: Potatoes, 12s. to 17s. per 252 lbs.; new ditto, 26s. to 42s.

PRICES OF BUTTER, CHEESE, HAMS, &c.

BUTTER, per cwt.:	s.	s.
Friesland	96 to	104
Kiel	—	—
Dorset	96	104
Carlow	86	100
Waterford	86	96
Cork,	92	98
Limerick	—	—
Sligo	86	98
FRESH, per dozen	10s. 0d. to	13s. 0d.

CHEESE, per cwt.:	s.	s.
Cheshire	64	80
Cheddar	72	80
Double Gloucester	56	72
HAMS:		
York	78	86
Westmoreland	78	84
Irish	76	86
BACON: Wiltshire, dried	74	78
Irish, green	66	70

ENGLISH BUTTER MARKET.

LONDON, MONDAY, June 28.—Owing to a short supply of foreign Butter, we have an improved demand for English in casks, but fresh is no dearer.

Dorset, fine	106s. to 110s. per cwt.
Ditto, middling	90s. to 100s. ,,
Fresh	10s. to 13s. per dozen.

BELFAST, (Thursday last.)—Butter: Shipping price, 88s. to 96s. per cwt.; firkins and crocks, 9d. to 9½d. per lb. Bacon, 56s. to 60s.; Hams, prime 74s. to 78s., second quality 60s. to 66s. per cwt. Prime mess Pork, 87s. 6d. per brl.; Beef, 120s. to 130s. per tierce; Irish Lard, in bladders 72s. to 76s.; kegs or firkins, 64s. to 66s. per cwt.

LONDONDERRY, (Thursday last.)—A large supply of butts, and prices rather lower; for firkins the demand was dull, but the quantity at market being small, prices remained without alteration; firkins, first 10¾d., seconds 9¾d. to 10d., third 9d., fourth 7¾d. to 8d.; butts fine 10½d., good 9¼d. to 9¾d., middling 8d. to 8½d. per lb.

WOOL MARKETS.

LONDON, MONDAY, June 28.—Since our last report, there has been a full average business doing in nearly all kinds of home-grown wools. Holders, generally, are very firm, and most of them refuse to sell except on higher terms. Throughout the provinces, there is a good demand for wool, at improving currencies.

ANDOVER WOOL MARKET.—As regards the number of fleeces, they exceeded that of last year. 35,000 fleeces were pitched. The number of dealers was unusually large, and a desire was evinced to lose no time in making purchases, as long before the fair commenced many transactions had taken place. On the opening of the fair an unusually brisk trade commenced, and continued until a general clearance was effected, at the following prices: Mixed lots, 13d. to 14d. per lb.; tegs, 14d. to 15d. per lb.; ewes, 13d. per lb.

BIRMINGHAM WOOL SALES, June 22.—There was a good attendance of buyers at to-day's sale. The competition for all descriptions of fleece wool was very animated, more particularly for strong bright clips of the midland counties. The quotations of prices are as follows:—Fleece wools: Mixed clips from 13d. to 15¾d., tegs 14d. to 16¾d., matchings 10d. to 17½d., wethers 13d½. to 14¾d., black and grey 12½d. to 12⅝d., cots 11½d. to 12d., locks 9d. to 9½d. Skin wools: Combing 13½d. to 15d., super 12d. to 14d., heads 9d. to 11d., bays 6d. to 7d., and shorn lambs 12d. to 13½d.

BRADFORD WOOL MARKET, (Thursday last.)—There is no abatement of the activity at the fairs and markets now progressing, and the farmers are free to admit that they are obtaining many shillings per tod more than they, two months ago, expected to realize. How far this game can be further played appears to perplex the trade, for the state of this market does not at all justify it. There is more doing in fine yarns on the spools, and the spinners generally engaged to order, at fair prices. In lower numbers the trade is really ruinous, and for shipping sorts the prices offered are such as to induce the producers to allow their machinery to stand idle, for they are unwilling to spin except to order; and we are glad to learn there are no stocks on hand, which augurs more favourably for the future. Pieces: There is no change of any moment to-day. There is a steady business doing to order only; no one seems inclined to make for stock. So long as this prudential course is pursued, it will prveent such irregularities as the trade has recently been subject to.—*Bradford Observer.*

GLOUCESTER WOOL MARKET.—About 100 tods came to market, all which found buyers, and, in some instances. at rather over 13d. per lb.

GERMAN WOOL SALES.—BERLIN, June 19: The Berlin wool fair commenced on the 18th inst., and terminated to-night. The quantity of wool in this market was larger than last year, and consisted of more than 125,000 cwt., including about 10,000 cwt. of old wool. The condition of the wool was, on the average, not satisfactory. The attendance of buyers was very numerous. The business altogether was slow, and the expectations regarding prices were not realized. The farmers asked last year's prices at the beginning, and on the first day only a quarter of the wools were sold, at a reduction of about 5 to 8 rix dollars per cwt., but in some cases even at a less reduction—say, 2 rix dollars per cwt., for the clean and good-conditioned wools. The business continued flat on the second day, and prices were easier; wools could be bought at 1 to 2 rix dollars per cwt. lower. The faulty wools were partly disposed of, at a reduction of about 10 rix dollars per cwt. In these wools there was not much business done. The disappointment of the buyers was general, they expecting, with good reason, a greater reduction in prices at our fair—at least 10 to 15 rix dollars per cwt. below last year. For the English market no great quantity has been bought; wools suitable for that market could not be bought below 80 to 87 rix dollars per cwt.—*Leeds Mercury.*

MANURES.

PRICES CURRENT OF GUANO, &c.

	£ s. d.		£ s. d.
PERUVIAN GUANO, (per ton, for 30 tons) nominal	£13 5 0	to	£0 0 0
Do. Do. (under 30 tons)	14 0 0		0 0 0
BOLIVIAN GUANO none	0 0 0		0 0 0

ARTIFICIAL MANURES, &c.

	£ s. d.		£ s. d.
Nitrate Soda (per ton)	£18 0 0	to	£20 0 0
Nitrate Potash or Saltpetre	29 0 0		30 0 0
Sulpht. Ammonia	19 10 0		20 0 0
Muriate ditto	27 0 0		28 0 0
Superphospht. of Lime	5 10 0		6 0 0
Soda Ash, or Alkali	9 0 0		10 0 0
Gypsum	2 0 0		2 10 0
Coprolite	3 10 0		3 15 0
Sulph. of Copper or Roman Vitriol, for Wheat steeping	45 0 0	to	47 0 0
Salt	1 0 0		1 10 0
Bones, Dust, per qr.	1 5 0		1 6 0
Do. ½-inch	1 4 0		1 5 0
Oil Vitriol, concentrated, per lb.	0 0 1		0 0 0
Do. Brown	0 0 0¾		0 0 0

OIL-CAKES.

	£ s. d.		£ s. d.
Linseed-cakes, per ton—			
Thin American, in brls. or bags	£9 15 0		£10 10 0
Thick do. round (none)			0 0 0
Marseilles	£9 0 0	to	£9 10 0
English	10 0 0		0 0 0
Rape-cakes, pr ton	5 10 0		6 10 0

JOHN KEEN, 35, Leadenhall-street,
(Late Odams, Pickford, and Keen.)

Agricultural Chemical Works, Stowmarket, Suffolk.

		£ s. d.
Prentice's Cereal Manure for Corn Crops	per ton	£8 10 0
Prentice's Turnip Manure	,,	7 0 0
Prentice's Superphosphate of Lime	,,	6 10 0

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THE FARMER'S MAGAZINE.

AUGUST, 1858.

PLATE I.

PRIZE LEICESTERS,

THE PROPERTY OF MR. W. SANDAY, OF HOLME PIERREPONT, NOTTINGHAM.

"Mr. Sanday is to the Leicester what Mr. Webb is to the Southdown. He had, indeed, yet more his own way, and took every prize that was offered. For the pure Leicester there is no other man like him; and however fond some of us may be of trying our hand at experiments, it is here you must go again and again for the cross, just as you would to the thorough-bred horse. There may be bigger sheep than Mr. Sanday's, but there are none safer to deal with."

The above extract is from our own report of the Agricultural Society's Meeting at Salisbury, last year. These portraits are from the same show. The first sheep—to the left of the picture, that is—is from the first-prize pen of shearling ewes. Her pedigree, written in somewhat pecular cypher, makes her by M. U., dam by No. 3, grandam by K. G.

The next in our print is the first-prize aged ram by W. H., dam by Y., grandam by H. W. H. was a prize sheep at Windsor, Y. the first-prize at Norwich, and H. second at Shrewsbury.

The third sheep is the "best shearling ram," also by W. H., dam Y. H., grandam (P. P.) by D. N. The latter (P. P.) was one the first-prize ewes at Windsor. None of these sheep had ever been exhibited previous to the Salisbury show.

Mr. Sanday did not enter at Chester, and the class suffered materially in character from his absence.

PLATE II.

QUEEN MARY, THE DAM OF BLINK BONNY AND HARICOT.

(For description see page 102.)

SEWAGE MANURE.

BY CUTHBERT W. JOHNSON, ESQ., F.R.S.

Fortunately for sanitary improvement, and for irrigation, the sewers of London have been in the summer of 1858, rendering themselves very disagreeable. Their conduct has seriously annoyed their owners, and disgusted the Parliament assembled near their mouths. The pernicious nuisance has at last forced itself upon the attention of the Government; the interest, therefore, of a large sum of money is to be guaranteed for the construction of capacious transverse or intercepting sewers. The sewage of London is to be received in these before it reaches the Thames, and is thence to be carried either far down the river, or on to the shores of the German ocean. At such a time it may be well if we again examine the guiding facts, which have been recently determined with regard to the real value of sewage in irrigation, or that of its merely mechanically or chemically combined portions. This examination may be, perhaps, the more valuable, since there is still a considerable general confusion of ideas with regard to the agricultural value of sewage, and the most profitable mode of applying it to the soil.

The startling amount of the sewage of our great towns is but little understood; let us confine our attention on this occasion to that of London. The bulk of the metropolitan sewage may be approximately estimated by that of the water used by the inhabitants. Now, this was ascertained in 1850, by the officers of the General Board of Health, and is given in their report on the supply of water to the metropolis, when they remark, p. 10.—

" The gross daily quantity of water pumped into the metropolis amounts, according to the obtained returns, to upwards 44,000,000 gallons. In order to give a conception of the quantity of water thus delivered, it may be stated, that the daily supply would exhaust a lake equal in extent to the area of St. James's Park, 30 inches in depth; that the annual supply exceeds the total rainfall of 27 inches over the populated portion of the metropolis (25 square miles), by upwards of 50 per cent., and that it would cover an extent of area equal to that of the city (or about one square mile), with upwards of 90 feet depth of water.

" The daily supply would, however, be delivered in 24 hours, by a brook 9 feet wide and 3 feet deep, running at the rate of 3 feet per second, or a little more than two miles per hour; and three sewers of 3 feet in diameter, and of a proper fall, will suffice for the removal of the same volume of refuse or soil-water. The total weight of this annual supply of water is nearly 72,000,000 tons. The daily cost of raising the whole quantity by engine power 100 feet high, would be about £25 or about £9,000 per annum.

" The average daily quantity pumped into the districts, exclusive of the supplies to large consumers, and of the quantity used for all public purposes, would, supposing it were equally distributed for each house, occupy about 50 pailfulls, and would weigh about 13 cwt."

In urging the removal of the great mass of decomposing sewage matter, whose bulk is thus indicated, the Commissioners allude to some of its injurious effects, which will not be unworthy of my reader's notice, in regard not only to their own health, but to that of their domestic animals. They observe :—

" In a state of nature animals will not, when at liberty, remain near or sleep over their own droppings. Some animals are endowed with instincts to cover them up. When attention is paid to the proper keeping of animals, it is found to be injurious to allow them to lie amidst the fumes of their own dung. Formerly the Zoological Society suffered heavy losses among the animals kept at Regent's Park from neglect of this law, as, *e. g.*, in the case of the carnivora, which were originally confined in a roofed and enclosed building, the atmosphere of which, during a single night, became strongly impregnated with ammoniacal exhalations. A marked improvement has followed the keeping of the same order of animals in dens exposed to the open air, together with the practice of immediate removal of the excrement. Skilful trainers of horses for hunting and racing have their stables carefully cleansed, and all dung as well as the urine removed, three times a day, to such a distance that no fumes from them may reach the animals. But the common practice in towns is to keep the dung in the stables for weeks, during which time not only the animals, but the neighbourhood, are subjected to insalubrious effluvia, the effects of which are strikingly visible in the pallid countenances and inferior stamina of the grooms and stable boys. On an investigation of the disease among hunting dogs, called " kennel lameness," it was found that mere change of the sites of kennels did not avert it; and eventually its cause was ascertained to be defective cleansing, including the want of a due supply of pure water, and of effectual drainage. A person having much experience on the subject lays it down as an axiom, that the removal of all foul matters from within or beneath the kennels, must not only be constant and complete, but distant; and that no opening of a drain should be allowed within at least 100 yards of the kennel."

This amount of water supplied to the metropolis (which has been materially enlarged since 1850), nearly represents the whole bulk of the London sewage; since, although reduced by evaporation, it is most considerably enlarged by the drainage of the rainfall and springs.

To worse than waste this enormous amount of liquid manure, by pouring it into the Thames has long and justly been deemed a gross absurdity; but how that national loss of fertilizing matters shall be best applied to an agricultural purpose is not so generally understood, although it has been the occasion for the display of very considerable discussion, of illinformed zeal, frequently mingled with personal vulgarities, not unworthy of those very sewers.

There have been two modes suggested for the utilization of the fertilizing matters of sewage. 1st. That of precipitating its solid portion, as at Leicester, and one or two other places; and 2ndly, by using the sewage (in its ordinary state, or after being deodorized), in irrigation.

The first mode has the advantage of commonly requiring less outlay of capital than is essential to construct sewers sufficient to convey the sewage to the necessary distance from densely inhabited districts. But then it has the almost insurmountable disadvantage, that the solid manure thus produced by the deodorizing works is of too little value to be worthy of the farmer's attention, more especially in such places where the richer refuse matters of towns are largely obtainable at a very reasonable rate. It is most desirable that we should well understand this portion of the inquiry. It has been successfully examined by Mr. R. S. Burn, (*Quar. Jour. Agri.* 1858, pp. 270-386.) He gives the estimate of Messrs. Hoffman and Witt, who have calculated the agricultural value of the soluble and insoluble constituents of 100 tons of London sewage. It is as follows:—

	Soluble.		Insoluble.	
	s.	d.	s.	d.
In its original state	15	4½	2	3½
(Total value 17s. 8d.)				
After treatment with lime ..	11	11	—	
After filtration through charcoal	11	1½	—	
After shaking with charcoal ..	10	11½	—	
After treating with Stothart and Gotta's mixtures	12	5	—	

From these numbers, as it is truly observed by these chemists, it is obvious that six-sevenths of all the fertilizing constituents of sewage are in the soluble form; and that, in the liquid which results from the deodorizing processes by means of lime and charcoal, a very considerable proportion of the soluble agents of the original sewage remain unremoved.

We are furnished, however, with the means of still further and practically examining this branch of the inquiry. Professor Voelcker analyzed the solid sewage manure, which is skilfully precipitated at Leicester by means of lime, moulded into the form of bricks, and properly dried, for the greater convenience of carriage. In 100 parts of these bricks were contained:

Water	10.52
Organic matter	12.46
Insoluble siliceous matter ..	13.50
Sulphate of lime	1.76
Oxides of iron, and alumina..	2.89
Carbonate of lime	52.99
Carbonate of magnesia	3.67
Common salt	0.45
Potash	0.26
Phosphate of lime	2.27
Nitrogen	0.60 per cent.
Ammonia	0.72 ,,

From this analysis, the value of the Leicester sewage brick manure is 15s. 5d. per ton; but, assuming it to be 18s., then, as it takes 12½ tons of these bricks to give the same amount of fertilizing matter as 1 ton of guano, these chemists have thus shown the relative cost of applying the bricks and guano as a manure:

AT THE FACTORY.

Guano.

	£	s.	d.
1 ton guano	11	0	0
Spreading	0	0	9
	£11	0	9

Leicester Brick.

	£	s.	d.
12½ tons	11	0	0
Spreading	0	9	9
	£11	9	9

AT A DISTANCE OF FIVE MILES.

Guano.

	£	s.	d.
1 ton of guano	11	0	0
Carriage	0	5	0
Spreading	0	0	9
	£11	5	9

Leicester Brick.

	£	s.	d.
12½ tons	11	0	0
Carriage	3	2	6
Spreading	0	9	9
	£14	12	3

It is evident, therefore, that in general the sewage brick manure of Leicester best bears an economical comparison with guano at the manufactory, which is the place where it is most exposed to competition with more concentrated organic town manures. It would seem, therefore, that the further the deodorizing works are removed from populous places, the more valuable is the solid manure produced; the farmer, in distant places, commonly becoming more willing to purchase heavier and less-concentrated fertilizers, if obtainable near his land.

Where we have the power to apply sewage in its original state to grass-land, we get rid of all the labour of deodorization, and utilize the most fertilizing (or liquid) portion of the sewage. Here, however, we have to apply it in large proportions: it is idle to expect very considerable benefits from the limited amount which is very often used. The liquid employed can only possess fertilizing powers from (first) its water, or (second) the foreign matters chemically or mechanically diffused through it. Now, to give to an acre of grass-land the fertilizing power of 4 cwt. of guano, it is necessary to use 250 tons of sewage; but then, in so doing, we apply water equal to a depth of 2½ inches of rain.

My readers will remark that the results of these calculations well accord with the practice of the owners of the great sewage-irrigated meads of Clipstone in Nottinghamshire, of Edinburgh, and of Milan, only lately reported upon by her Majesty's Commissioners, Messrs. Austin, Way, and Southwood Smith. In all these cases, large quantities of sewage are employed. These Commissioners, when reporting upon the irrigated meads of Milan, so celebrated for their productiveness, tell us that they found that the river Vettabbia, which conveys the liquid refuse from the city of Milan, is made to ramify, and serve for the irrigation of about 4,000 acres of land; and that the depth of water conveyed on to the land, calculated over the whole area, is about 8 feet per acre per annum, conveying to each acre the liquid refuse of about 40 persons: but then it must be observed that much of the water is used over and over again successively, on lands at lower levels.

We see, then, that the quantity of water annually applied by the Milanese irrigators is about equal to 9,600 tons per acre. The Italian farmers turn on the water, during the summer months, for 6 to 10 hours every week; but on some of their meads, which are then called "marcite," the water is, during the winter, constantly kept flowing over the grass, in a thin film. The produce of some of these meadows is given by the reporters. On the farm of Dr. Chiappa (of 580 acres), between 3 and 4 miles from Milan, about 80 acres are "marcite." These support entirely, during the year, 100 stall-fed cows. Six crops of grass are cut during the year—viz., in—

February,	800	kilogrammes	per pertica
April,	800	,,	,,
June,	600	,,	,,
August,	600	,,	,,
October,	400	,,	,,
December,	400	,,	,,

Or, annually, about 22 tons of grass per acre. Hay, it seems, is here made in June and August, and sometimes in October. The cattle have hay only during about 40 days in the year; at all other times they are fed upon fresh grass. No manure whatever is applied to meads, except the foul irrigating waters.

It seems evident, then, that the application of sewage to land is best accomplished by using it for irrigation; and if so, then it appears very desirable for this purpose that, in all engineering arrangements where it is necessary to raise the sewage by mechanical means into main sewers, a reasonably high level should be selected for those great culverts. It is hardly necessary to say why a high level is preferable, since it is evident that it is only from its flowing at such elevations, that the owners of the land near which it passes towards its outlet can use the sewage (flowing by its own gravity) in sufficiently copious quantities for the valuable purposes of irrigation.]

MR. RAREY'S SYSTEM OF HORSE-TAMING.

It seems that Mr. Rarey's secret was no secret, as far as our cousins at the other side of the Atlantic were concerned, as he published in 1856, in America, a work on the subject, which, from the evidence of some of his pupils, seems to contain all the information which he has communicated to his two or three thousand subscribers, to the tune of £10 10s. each. Some of them seem much annoyed at the position in which they are placed, having signed a bond not to reveal the secret under a penalty of £500, while they find the whole can be now had in a pamphlet for sixpence. At one of Mr. Rarey's lectures, lately given, it is reported that Mr. Leslie complained, "in a manner not altogether gracious or respectful, that, although he had paid 10 guineas to learn Mr. Rarey's system, and had entered into a bond of £500 not to betray the secret, he yet found that a pamphlet had been published for sixpence, which purported to be written by Mr. Rarey, and to contain the same information as that which he communicated in his lectures. He wished to know, under the circumstances, what part of the secret it was which he was required to conceal? and whether the subscribers were to be placed in a worse position, in regard to divulging the mysteries of the system, than the public who read the pamphlet?" Mr. Rarey admitted the fact that "the pamphlet was a reprint of one which he had published in America some years ago, and against the piracy of which, as there was no international copyright, he could obtain no protection." "The pamphlet, he remarked, "could not be said to contain the details of his system, as now perfected by long subsequent experience and observation." Mr. Leslie, evidently not satisfied with his position, thus wrote to the Editor of the *Morning Post:*

"Sir,—Being one of Mr. Rarey's pupils, and the person who commenced the remarks to-day at the Kinnerton Round House, on the subject of the bond to secresy of £500 entered into individually by all subscribers, I feel at liberty to recommend subscribers to look into their position as regards the bond of secresy, seeing that a treatise on 'The Modern Art of Taming Wild Horses, by J. S. Rarey, the Horse Tamer, reprinted from the American Edition,' can be obtained at the publishers', Messrs. G. Routledge and Co., Farringdon-street, City, for the sum of sixpence.

"I remain, Sir, your obedient servant,
"GEORGE FARQUHAR LESLIE.
"45, Rutland Gate, S.W."

Other parties have written to the *Times*—some in their own name, others signing themselves "Zebra," &c. However, we give the pamphlet entire, premising that some parts of Mr. Rarey's process (secret no longer) appear to us not only cruel, but dangerous to the animal, in the hands of inexperienced persons; and how men of intelligence could proclaim to the world that no cruelty was practised, seems to us, after reading the book, a perfect mystery. Here it is, *in extenso :*

THE MODERN ART OF TAMING WILD HORSES.

INTRODUCTION.

The first domestication of the horse, one of the greatest achievements of man in the animal kingdom, was not the work of a day, but, like all other great accomplishments, was brought about by a gradual process of discoveries and experiments. He first subdued the more subordinate animals, on account of their being easily caught and tamed, and used for many years the mere drudges—the ox, the ass, and the camel—instead of the fleet and elegant horse. This noble animal was the last brought into subjection, owing, perhaps, to man's limited and inaccurate knowledge of his nature, and his consequent inability to control him. This fact alone is sufficient evidence of his superiority over all other animals.

Man, in all his inventions and discoveries, has almost invariably commenced with some simple principle, and gradually developed it from one degree of perfection to another. The first hint that we have of the use of electricity was Franklin's drawing it from the clouds with his kite: now, it is the instrument of conveying thought from mind to mind, with a rapidity that surpasses time. The great propelling power that drives the wheel of the engine over our land, and ploughs the ocean with our steamers, was first discovered escaping from a tea-kettle. And so the powers of the horse, second only to the powers of steam, became known to man only as experiments and investigation revealed them.

The horse, according to the best accounts we can gather, has been the constant servant of man for nearly four thousand years, ever rewarding him with his labour, and adding to his comfort, in proportion to his skill and manner of using him; but being to those who govern him by brute force, and know nothing of the beauty and delight to be gained from the cultivation of his finer nature, a fretful, vicious, and often dangerous servant; whilst to the Arab, whose horse is the pride of his life, and who governs him by the law of kindness, we find him to be quite a different animal. The manner in which he is treated from a foal, gives him an affection and attachment for his master not known in any other country. The Arab and his children, the mare and her foal, inhabit the tent together; and although the colt and the mare's neck are often pillows for the children to roll upon, no accident ever occurs, the mare being as careful of the children as of the colt. Such is the mutual attachment between the horse and his master, that he will leave his companions at his master's call, ever glad to obey his voice. And when the Arab falls from his horse, and is unable to rise again, he will stand by him and neigh for assistance; and if he lies down to sleep, as fatigue compels him to do, in the midst of the desert, his faithful steed will watch over him, and neigh to arouse him, if man or beast approaches. The Arabs frequently teach their horses secret signs, or signals, which they make use of on urgent occasions, to call forth their utmost exertions. These are more efficient than the barbarous mode of urging them on with the spur and whip, a forcible illustration of which will be found in the following anecdote:

A Bedouin named Jabal possessed a mare of great celebrity. Hassad Pasha, then Governor of Damascus, wished to buy the animal, and repeatedly made the owner the most liberal offers, which Jabal steadily refused. The Pacha then had recourse to threats, but with no better success. At length one Gafar, a Bedouin of another tribe, presented himself to the Pasha, and asked what he would give the man who should make him master of Jabal's mare? I will fill his horse's nose-bag with gold," replied Hassad. The result of this interview having gone abroad, Jabal became more watchful than ever, and always secured his mare at night with an iron chain, one end of which was fastened to her hind-fetlock, whilst the other, after passing through the tent-cloth, was attached to a picket driven in the ground under the felt that served himself and his wife for a bed. But one midnight Gafar crept silently into the tent, and succeeded in loosening the chain. Just before starting off with his prize, he caught up Jabal's lance, and, poking him with the butt end, cried out, "I am Gafar! I have stolen your noble mare, and will give you notice in time." This warning was in accordance with the customs of the Desert; for to rob a hostile tribe is considered an honourable exploit, and the man who accomplishes it, is desirous of all the glory that may flow from the deed. Poor Jabal, when he heard the words, rushed out of the tent, and gave the alarm; then, mounting his brother's mare, accompanied by some of his tribe, he pursued the robber for four hours. The brother's mare was of the same stock as Jabal's, but was not equal to her: nevertheless, he outstripped those of all the other pursuers, and was even on the point of overtaking the robber, when Jabal shouted to him, "Pinch her right ear, and give her a touch of the heel!" Gafar did so; and away went the mare like lightning, speedily rendering further pursuit hopeless. The *pinch in the ear* and the *touch with the heel* were the secret signs by which Jabal had been used to urge his mare to her utmost speed. Jabal's companions were amazed and indignant at his strange conduct. "O thou father of a jackass," they cried, "thou hast enabled the thief to rob thee of thy jewel!" But he silenced their upbraidings by saying, "I would rather lose her than sully her reputation. Would you have me suffer it to be said among the tribes that another mare had proved fleeter than mine? I have at least this comfort left me—that I can say she never met with her match."

Different countries have their different modes of horsemanship; but amongst all of them its first practice was carried on in but a rude and indifferent way, being hardly a stepping-stone to the comfort and delight gained from the use of the horse at the present day. The polished Greeks, as well as the ruder nations of Northern Africa, for a long while rode without either saddle or bridle, guiding their horses with the voice or the hand, or with a light switch, with which they touched the animal on the side of the face, to make him turn in the opposite direction. They urged him forward by a touch of the heel, and stopped him by catching him by the muzzle. Bridles and bits were at length introduced; but many centuries elapsed before anything that could be called a saddle was used. Instead of these, cloths, single or padded, and skins of wild beasts, often richly adorned, were placed beneath the rider, but always without stirrups; and it is given as an extraordinary fact that the Romans, even in the times when luxury was carried to excess amongst them, never desired so simple an expedient for assisting the horseman to mount, to lessen his fatigue, and aid him in sitting more securely in his saddle. Ancient sculptures prove that the horsemen of almost every country were accustomed to mount their horses from the right side of the animal, that they might the better grasp the mane, which hangs on that side—a practice universally changed in modern times. The ancients generally leaped on their horses' backs, though they sometimes carried a spear with a loop or projection about two feet from the bottom, which served them as a step. In Greece and Rome, the local magistracy were bound to see that blocks for mounting (what the Scotch call "loupin'-on stanes") were placed along the road at convenient distances. The great, however, thought it more dignified to mount their horses by stepping on the bent backs of their servants or slaves; and many, who could not command such costly help, used to carry a light ladder about with them. The first distinct notice that we have of the use of the saddle occurs in the edict of the Emperor Theodosius (A.D. 385), from which we also learn that it was usual for those who hired post-horses to provide their own saddle; and that the saddle should not weigh more than sixty pounds—a cumbrous contrivance, more like the howdahs placed on the backs of elephants than the light and elegant saddle of modern times. Side-saddles for ladies are an invention of comparatively recent date. The first seen in England was made for Anne of Bohemia, wife of Richard the Second, and was probably more like a pillion than the side-saddle of the present day. A pillion is a sort of very low-backed arm-chair, and was fastened on the horse's croup, behind the saddle, on which a man rode who had all the care of managing the horse, while the lady sat at her ease, supporting herself by grasping a belt which he wore, or passing her arm around his body, if the *gentleman was not too ticklish*. But the Mexicans manage these things with more gallantry than the ancients did. The *paisana*, or country lady, we are told, is often seen mounted before her *caballero*, who takes the more natural position of being seated behind his fair one, supporting her by throwing his arm around her waist—a very appropriate support, if the bent position of the arm does not cause an occasional contraction of the muscles. These two positions may justly be considered as the first steps taken by the ladies towards their improved and elegant mode of riding at the present day. At an early period, when the diversion of hawking was prevalent, they dressed themselves in the costume of the knight, and rode astride.

Horses were in general use for many centuries before anything like a protection for the hoof was thought of; and it was introduced at first, as a matter of course, on a very simple scale. The first foot-defence, it is said, which was given to the horse, was on the same principle as that worn by man: it was a sort of sandal, made of leather, and tied to the horse's foot by means of straps or strings. And, finally, plates of metal were fastened to the horse's feet by the same simple means.

Here again, as in the case of the stirrupless saddle, when we reflect that men should, for nearly a thousand years, have gone on fastening plates of metal under horses' hoofs by the clumsy means of straps and strings, without its ever occurring to them to try so simple an improvement as nails, we have another remarkable demonstration of the slow steps by which horsemanship has reached its present state.

In the foregoing remarks, I have taken the liberty of extracting several facts from a valuable little work by Rolla Springfield.

With this short comment on the rise and progress of horsemanship, from its commencement up to the present time, I will proceed to give you the principles of a new theory of taming wild horses, which is the result of many experiments, and a thorough investigation and trial of the different methods of horsemanship now in use.

THE THREE FUNDAMENTAL PRINCPLES OF MY THEORY.

Founded on the Leading Characteristics of the Horse.

First.—That he is so constituted by nature that he will not offer resistance to any demand made of him which he fully comprehends, if made in a way consistent with the laws of his nature.

Second.—That he has no consciousness of his strength beyond his experience, and can be handled according to our will without force.

Third.—That we can, in compliance with the laws of his nature, by which he examines all things new to him, take any object, however frightful, around, over, or on him, that does not inflict pain —without causing him to fear.

To take these assertions in order, I will first give you some of the reasons why I think he is naturally obedient, and will not offer resistance to anything fully comprehended. The horse, though possessed of some faculties superior to man's, being deficient in reasoning powers, has no knowledge of right or wrong, of free will and independent government, and knows not of any imposition practised upon him, however unreasonable these impositions may be. Consequently, he cannot come to any decision as to what he should or should not do, because he has not the reasoning faculties of man to argue the justice of the thing demanded of him. If he had, taking into consideration his superior strength, he would be useless to man as a servant. Give him *mind* in proportion to his strength, and he will demand of us the green fields for his inheritance, where he will roam at leisure, denying the right of servitude at all. God has wisely formed his nature so that it can be operated upon by the knowledge of man according to the dictates of his will, and he might well be termed an unconscious, submissive servant. This truth we can see verified in every day's experience by the abuses practised upon him. Any one who chooses to be so cruel, can mount the noble steed and run him till he drops with fatigue, or, as is often the case with the more spirited, falls dead beneath his rider. If he had the power to reason, would he not vault and pitch his rider, rather than suffer him to run him to death? Or would he condescend to carry at all the vain impostor, who, with but equal intellect, was trying to impose on his equal rights and equally independent spirit? But happily for us, he has no consciousness of imposition, no thought of disobedience except by impulse caused by the violation of the law of his nature. Consequently, when disobedient, it is the fault of man.

Then, we can but come to the conclusion that, if a horse is not taken in a way at variance with the laws of his nature, he will do anything that he fully comprehends, without making any offer of resistance.

Second.—The fact of the horse being unconscious of the amount of his strength can be proven to the satisfaction of any one. For instance, such remarks as these are common, and perhaps familiar to your recollection. One person says to another, "If that wild horse there was conscious of the amount of his strength, his owner would have no business with him in that vehicle; such light reins and harness, too—if he knew, he could snap them asunder in a minute and be as free as the air we breathe;" and, "That horse yonder, that is pawing and fretting to follow the company that is fast leaving him—if he knew his strength, he would not remain long fastened to that hitching post so much against his will, by a strap that would no more resist his powerful weight and strength than a cotton thread would bind a strong man." Yet these facts, made common by every-day occurrence, are not thought of as anything wonderful. Like the ignorant man who looks at the different phases of the moon, you look at these things as he looks at her different changes, without troubling your mind with the question, "Why are these things so?" What would be the condition of the world if all our minds lay dormant? If men did not think, reason, and act, our undisturbed, slumbering intellects would not excel the imbecility of the brute; we should live in chaos, hardly aware of our existence. And yet, with all our activity of mind, we daily pass by unobserved that which would be wonderful if philosophical and reasoned upon; and with the same inconsistency wonder at that which a little consideration, reason, and philosophy would make but a simple affair.

Third.—He will allow any object, however frightful in appearance, to come around, over, or on him, that does not inflict pain.

We know from a natural course of reasoning, that there has never been an effect without a cause, and we infer from this, that there can be no action either in animate or inanimate matter, without there first being some cause to produce it. And from this self-evident fact we know that there is some cause for every impulse or movement of either mind or matter, and that this law governs every action or movement of the animal kingdom. Then, according to this theory, there must be some cause before fear can exist; and, if fear exists from the effect of imagination, and not from the infliction of real pain, it can be removed by complying with those laws of nature by which the horse examines an object, and determines upon its innocence or harm.

A log or stump by the roadside may be, in the imagination of the horse, some great beast about to pounce upon him; but, after you take him up to it, and let him stand by it a little while, and touch it with his nose, and go through his process of examination, he will not care anything more about it. And the same principle and process will have the same effect with any other object, however frightful in appearance, in which there is no harm. Take a boy that has been frightened by a false face, or any other object that he could not comprehend at once; but let him take that face or object in his hands and examine it, and he will not care anything more about it. This is a demonstration of the same principle.

With this introduction to the principles of my theory, I shall next attempt to teach you how to put it into practice; and, whatever instructions may follow you can rely on, as having been proven practically by my own experiments. And knowing from experience just what obstacles I have met with in handling bad horses, I shall try to anticipate them for you, and assist you in surmounting them, by commencing with the first steps to be taken with the colt, and accompanying you through the whole task of breaking.

HOW TO SUCCEED IN GETTING THE COLT FROM PASTURE.

Go to the pasture and walk around the whole herd quietly, and at such a distance as not to cause them to scare and run. Then approach them very slowly, and if they stick up their heads and seem to be frightened, hold on until they become quiet, so as not to make them run before you are close enough to drive them in the direction you want them to go. And when you begin to drive, do not flourish your arms or halloo, but gently follow them off, leaving the direction free for them that you wish them to take. Thus taking advantage of their ignorance, you will be able to get them into the pound as easily as the hunter drives the quails into his net. For, if they have always run in the pasture uncared for (as many horses do in prairie countries and on large plantations), there is no reason why they should not be as wild as the sportsman's birds, and require the same gentle treatment, if you want to get them without trouble; for the horse, in his natural state, is as wild as any of the undomesticated animals, though more easily tamed than the most of them.

HOW TO STABLE A COLT WITHOUT TROUBLE.

The next step will be, to get the horse into a stable or shed. This should be done as quietly as possible, so as not to excite any suspicion in the horse of any danger befalling him. The best way to do this, is to lead a gentle horse into the stable first and hitch him, then quietly walk around the colt and let him go in of his own accord. It is almost impossible to get men who have never practised on this principle to go slowly and considerately enough about it. They do not know that in handling a wild horse, above all other things, is that good old adage true, that "haste makes waste;" that is, waste of time—for the gain of trouble and perplexity.

One wrong move may frighten your horse, and make him think it necessary to escape at all hazards for the safety of his life—and thus make two hours' work of a ten minutes' job; and this would be all your own fault, and entirely unnecessary—for he will not run unless you run after him, and that would not be good policy unless you knew that you could outrun him, for you will have to let him stop of his own accord after all. But he will not try to break away unless you attempt to force him into measures. If he does not see the way at once, and is a little fretful about going in, do not undertake to drive him, but give him a little less room outside, by gently closing in around him. Do not raise your arms, but let them hang at your side, for you might as well raise a club: the horse has never studied anatomy, and does not know but that they will unhinge themselves and fly at him. If he attempts to turn back, walk before him, but do not run; and if he gets past you, encircle him again in the same quiet manner, and he will soon find that you are not going to hurt him; and then you can walk so close around him that he will go into the stable for more room, and to get farther from you. As soon as he is in, remove the quiet horse and shut the door. This will be his first notion of confinement

—not knowing how to get into such a place, nor how to get out of it. That he may take it as quietly as possible, see that the shed is entirely free from dogs, chickens, or anything that would annoy him. Then give him a few ears of corn, and let him remain alone fifteen or twenty minutes, until he has examined his apartment, and has become reconciled to his confinement.

TIME TO REFLECT.

And now, while your horse is eating those few ears of corn, is the proper time to see that your halter is ready and all right, and to reflect on the best mode of operations; for in horsebreaking it is highly important that you should be governed by some system. And you should know, before you attempt to do anything, just what you are going to do, and how you are going to do it. And, if you are experienced in the art of taming wild horses, you ought to be able to tell, within a few minutes, the length of time it would take you to halter the colt, and teach him to lead.

THE KIND OF HALTER.

Always use a leather halter, and be sure to have it made so that it will not draw tight around his nose if he pulls on it. It should be of the right size to fit his head easily and nicely; so that the nose-band will not be too tight or too low. Never put a rope halter on an unbroken colt, under any circumstances whatever. They have caused more horses to hurt or kill themselves than would pay for twice the cost of all the leather halters that have ever been needed for the purpose of haltering colts. It is almost impossible to break a colt that is very wild with a rope halter, without having him pull, rear, and throw himself, and thus endanger his life; and I will tell you why. It is just as natural for a horse to try to get his head out of anything that hurts it, or feels unpleasant, as it would be for you to try to get your hand out of a fire. The cords of the rope are hard and cutting; this makes him raise his head and draw on it, and as soon as he pulls, the slip noose (the way rope halters are always made) tightens, and pinches his nose, and then he will struggle for life, until, perchance, he throws himself; and who would have his horse throw himself, and run the risk of breaking his neck, rather than pay the price of a leather halter? But this is not the worst. A horse that has once pulled on his halter can never be as well broken as one that has never pulled at all.

REMARKS ON THE HORSE.

But before we attempt to do anything more with the colt, I will give you some of the characteristics of his nature, that you may better understand his motions. Every one that has ever paid any attention to the horse, has noticed his natural inclination to smell everything which to him looks new and frightful. This is their strange mode of examining everything. And, when they are frightened at anything, though they look at it sharply, they seem to have no confidence in this optical examination alone, but must touch it with the nose before they are entirely satisfied; and, as soon as this is done, all is right.

EXPERIMENT WITH THE ROBE.

If you want to satisfy yourself of this characteristic of the horse, and learn something of importance concerning the peculiarities of his nature, &c., turn him into the barn-yard, or a large stable will do. And then gather up something that you know will frighten him—a red blanket, buffalo robe, or something of that kind. Hold it up so that he can see it, he will stick up his head and snort. Then throw it down somewhere in the centre of the lot or barn, and walk off to one side. Watch his motions, and study his nature. If he is frightened at the object, he will not rest until he has touched it with his nose. You will see him begin to walk around the robe and snort, all the time getting a little closer, as if drawn up by some magic spell, until he finally gets within reach of it. He will then very cautiously stretch out his neck as far as he can reach, merely touching it with his nose, as though he thought it was ready to fly at him. But after he has repeated these touches a few times, for the first (though he has been looking at it all the time), he seems to have an idea what it is. But now he has found, by the sense of feeling, that it is nothing that will do him any harm, and he is ready to play with it. And if you watch him closely, you will see him take hold of it with his teeth, and raise it up and pull at it. And in a few minutes you can see that he has not that same wild look about his eyes, but stands like a horse biting at some familiar stump.

Yet the horse is never so well satisfied when he is about anything that has frightened him, as when he is standing with his nose to it. And, in nine cases out of ten, you will see some of that same wild look about him again, as he turns to walk from it. And you will, probably, see him looking back very suspiciously as he walks away, as though he thought it might come after him yet. And in all probability, he will have to go back and make another examination before he is satisfied. But he will familiarize himself with it, and, if he should run in that lot a few days, the robe that frightened him so much at first will be no more to him than a familiar stump.

SUPPOSITIONS OF THE SENSE OF SMELLING.

We might very naturally suppose from the fact of the horse's applying his nose to everything new to him, that he always does so for the purpose of smelling these objects. But I believe that it is as much or more for the purpose of feeling, and that he makes use of his nose, or muzzle (as it is sometimes called), as we would of our hands; because it is the only organ by which he can touch or feel anything with much susceptibility.

I believe that he invariably makes use of the four senses, seeing, hearing, smelling, and feeling, in all of his examinations, of which the sense of feeling is, perhaps, the most important. And I think that, in the experiment with the robe, his gradual approach and final touch with his nose was as much for the purpose of feeling as anything else, his sense of smell being so keen that it would not be necessary for him to touch his nose against anything in order to get the proper scent; for it is said a horse can smell a man the distance of a mile. And, if the scent of the robe was all that was necessary he could get that several rods off. But we know from experience, that if a horse sees and smells a robe a short distance from him he is very much frightened (unless he is used to it) until he touches or feels it with his nose; which is a positive proof that feeling is the controlling sense in this case.

PREVAILING OPINION OF HORSEMEN.

It is a prevailing opinion among horsemen generally that the sense of smell is the governing sense of the horse; and Faucher, as well as others, has with that view got up receipts of strong smelling oils, &c., to tame the horse, sometimes using the chesnut of his leg, which they dry, grind into powder, and blow into his nostrils, sometimes using the oil of rhodium organum, &c., that are noted for their strong smell: and sometimes they scent the hand with the sweat from under the arm, or blow their breath into his nostrils, &c., &c. All of which, as far as the scent goes, have no effect whatever in gentling the horse, or conveying any idea to his mind; though the works that accompany these efforts—handling him, touching him about the nose and head, and patting him, as they direct you should, after administering the articles, may have a very great effect, which they mistake to be the effect of the ingredients used. And Faucher, in his work entitled "The Arabian Art of Taming Horses," page 17, tells us how to accustom a horse to a robe, by administering certain articles to his nose; and goes on to say that these articles must first be applied to the horse's nose, before you attempt to break him, in order to operate successfully.

Now, reader, can you, or any one else, give one single reason how scent can convey any idea to the horse's mind of what we want him to do? If not, then of course strong scents of any kind are of no account in taming the unbroken horse. For, everything that we get him to do of his own accord, without force, must be accomplished by some means of conveying our ideas to his mind. I say to my horse, "Go-'long!" and he goes; "Ho!" and he stops; because these two words, of which he has learned the meaning by the tap of the whip and the pull of the rein that first accompanied them, convey the two ideas to his mind of *go* and *stop*.

Faucher, or no one else, can ever teach the horse a single thing by the means of scent alone.

How long do you suppose a horse would have to stand and smell a bottle of oil before he would learn to bend his knee and make a bow at your bidding, "Go yonder and bring your hat," or "Come here and lie down?" Thus you see the absurdity of trying to tame or break the horse by the means of receipts for articles to smell at, or medicine to give him, of any kind whatever.

The only science that has ever existed in the world, relative to the breaking of horses, that has been of any account, is that true method which takes them in their native state, and improves their intelligence.

POWEL'S SYSTEM OF APPROACHING THE COLT.

But, before we go further, I will give you Willis J. Powel's system of approaching a wild colt, as given by him in a work published in Europe, about the year 1814, on the "Art of Taming Wild Horses." He says, "A horse is gentled by my secret in from two to sixteen hours." The time I have most commonly employed has been from four to six hours. He goes on to say, "Cause your horse to be put in a small yard, stable, or room. If in a stable or room, it ought to be large, in order to give him some exercise with the halter before you lead him out. If the horse belongs to that class which appears only to fear man, you must introduce yourself gently into the stable, room, or yard, where the horse is. He will naturally run from you, and frequently turn his head from you; but you must walk about extremely slow and softly, so that he can see you whenever he turns his head towards you, which he never fails to do in a short time, say in a quarter or half an hour. I never knew one to be much longer without turning towards me.

"At the very moment he turns his head, hold out your left hand towards him, and stand perfectly still, keeping your eyes upon the horse, watching his motions, if he makes any. If the horse does not stir for ten or fifteen minutes, advance as slowly as possible, and without making the least noise, always holding out your left hand, without any other ingredient in it than what nature put in it." He says, "I have made use of certain ingredients before people, such as the sweat under my arm, &c., to disguise the real secret, and many believed that the docility, to which the horse arrived in so short a time, was owing to these ingredients; but you see from this explanation that they were of no use whatever. The implicit faith placed in these ingredients, though innocent of themselves, becomes 'faith without works.' And thus men remained always in doubt concerning this secret. If the horse makes the least motion when you advance towards him, stop, and remain perfectly still until he is quiet. Remain a few moments in this condition, and then advance again in the same slow and almost imperceptible manner. Take notice—if the horse stirs, stop, without changing your position. It is very uncommon for the horse to stir more than once after you begin to advance, yet there are exceptions. He generally keeps his eye steadfast on you, until you get near enough to touch him on the forehead. When you are thus near to him, raise slowly, and by degrees, your hand, and let it come in contact with that part just above the nostrils, as lightly as possible. If the horse flinches (as many will), repeat with great rapidity these light strokes upon the forehead, going a little farther up towards his ears by degrees, and descending with the same rapidity until he will let you handle his forehead all over. Now let the strokes be repeated with more force over all his forehead, descending by lighter strokes to each side of his head, until you can handle that part with equal facility. Then touch in the same light manner, making your hands and fingers play around the lower part of the horse's ears, coming down now and then to his forehead, which may be looked upon as the helm that governs all the rest.

"Having succeeded in handling his ears, advance towards the neck, with the same precautions, and in the same manner; observing always to augment the force of the strokes whenever the horse will permit it. Perform the same on both sides of the neck, until he lets you take it in your arms without flinching.

"Proceed in the same progressive manner to the sides, and then to the back of the horse. Every time the horse shows any nervousness, return immediately to the forehead as the true standard, patting him with your hands, and thence rapidly to where you had already arrived, always gaining ground a considerable distance farther on every time this happens. The head, ears, neck, and body being thus gentled, proceed from the back to the root of the tail.

"This must be managed with dexterity, as a horse is never to be depended on that is skittish about the tail. Let your hand fall lightly and rapidly on that part next to the body a minute or two, and then you will begin to give it a slight pull upwards every quarter of a minute. At the same time you continue this handling of him, augment the force of the strokes as well as the raising of the tail, until you can raise it and handle it with the greatest ease, which commonly happens in a quarter of an hour in most horses, in others almost immediately, and in some much longer. It now remains to handle all his legs; from the tail come back again to the head, handle it well, as likewise the ears, breast, neck, &c., speaking now and then to the horse. Begin by degrees to descend to the legs, always ascending and descending, gaining ground every time you descend, until you get to his feet.

"Talk to the horse in Latin, Greek, French, English, or Spanish, or in any other language you please; but let him hear the sound of your voice, which at the beginning of the operation is not quite so necessary, but which I have always done in making him lift up his feet. 'Hold up your foot'—'*Leve la pied*'—'*Alza el pie*'—'*Aron ton poda,*' &c., at the same time lift his foot with your hand. He soon becomes familiar with the sounds, and will hold up his foot at command. Then proceed to the hind feet and go on in the same manner; and in a short time the horse will let you lift them, and even take them up in your arms.

"All this operation is no magnetism, no galvanism; it is merely taking away the fear a horse generally has of a man, and familiarizing the animal with his master. As the horse doubtless experiences a certain pleasure from his handling, he will soon become gentle under it, and show a very marked attachment to his keeper."

REMARKS ON POWEL'S TREATMENT—HOW TO GOVERN HORSES OF ANY KIND.

These instructions are very good, but not quite sufficient for horses of all kinds, and for haltering and leading the colt; but I have inserted them here because they give some of the true philosophy of approaching the horse, and of establishing confidence between man and horse. He speaks only of the kind that fear man.

To those who understand the philosophy of horsemanship, these are the easiest trained; for when we have a horse that is wild and lively, we can train him to our will in a very short time—for they are generally quick to learn, and always ready to obey. But there is another kind that are of a stubborn or viscious disposition; and although they are not wild, and do not require taming in the sense it is generally understood, they are just as ignorant as a wild horse, if not more so, and need to be taught just as much; and in order to have them obey quickly, it is very necessary that they should be made to fear their master; for, in order to obtain perfect obedience from any horse, we must first have him fear us, for our motto is, *fear, love, and obey;* and we must have the fulfilment of the first two before we can expect the latter; for it is by our philosophy of creating fear, love, and confidence, that we govern to our will every kind of horse whatever.

Then, in order to take horses as we find them, of all kinds, and to train them to our liking, we will always take with us, when we go into a stable to train a colt, a long switch whip (whalebone buggy-whips are the best), with a good silk cracker, so as to cut keenly and make a sharp report, which, if handled with dexterity, and rightly applied, accompanied with a sharp fierce word, will be sufficient to enliven the spirits of any horse. With this whip in your right hand, with the lash pointing backward, enter the stable alone. It is a great disadvantage in training a horse to have anyone in the stable with you; you should be entirely alone, so as to have nothing but yourself to attract his attention. If he is wild, you wild soon see him on the opposite side of the stable from you; and now is the time to use a little judgment. I should not want, for myself, more than half or three-quarters of an hour to handle any kind of a colt, and have him running about in the stable after me; though I would advise a new beginner to take more time, and not be in too much of a hurry. If you have but one colt to gentle, and are not particular about the length of time you spend, and have not had any experience in handling colts, I would advise you to take Mr. Powel's method at first, till you gentle him, which he says takes from two to six hours. But as I want to accomplish the same, and what is more, teach the horse to lead, in less than one hour, I shall give you a much quicker process of accomplishing the same end.

Accordingly, when you have entered the stable, stand still, and let your horse look at you a minute or two, and as soon as he is settled in one place, approach him slowly, with both arms stationary, your right hanging by your side, holding the whip as directed, and the left bent at the elbow, with your hand projecting. As you approach him, go not too much towards his head or croup, so as not to make him move either forward or backward, thus keeping your horse stationary; if he does move a little either forward or backward, step a little to the right or left very cautiously; this will keep him in one place. As you get very near him draw a little to his shoulder, and stop a few seconds. If you are in his reach he will turn his head and smell your hand, not that he has any preference for your hand, but because that is projecting, and is the nearest portion of your body to the horse. This all colts will do, and they will smell your naked hand just as quickly as they will of anything that you can put in it, and with just as good an effect, however much some men have preached the doctrine of taming horses by giving them the scent of articles from the hand. I have already proved that to be a mistake. As soon as he touches his nose to your hand, caress him as before directed, always using a very light soft hand, merely touching the horse, always rubbing the way the hair lies, so that your hand will pass along as smoothly as possible. As you stand by his side, you may find it more convenient to rub his neck or the side of his head, which will answer the same purpose as rubbing his forehead. Favour every inclination of the horse to smell or touch you with his nose. Always follow each touch or communication of this kind with the most tender and affectionate caresses, accompanied with a kind look, and pleasant word of some sort, such as, "Ho! my little boy—ho! my little boy!" "Pretty boy!" "Nice lady!" or something of that kind, constantly repeating the same words, with the same kind, steady tone of voice; for the horse soon learns to read the expression of the face and voice, and will know as well when fear, love, or anger prevails, as you know your own feelings; two of which, *fear and anger*, a good horseman *should never feel.*

HOW TO PROCEED IF YOUR HORSE IS OF A STUBBORN DISPOSITION.

If your horse, instead of being wild, seems to be of a stubborn or *mulish* disposition; if he lays back his ears as you approach him, or turns his heels to kick you, he has not that regard or fear of man that he should have, to enable you to handle him quickly and easily; and it might be well to give him a few sharp cuts with the whip about the legs, pretty close to the body. It will crack keen as it plies around his legs, and the crack of the whip will affect him as much as the stroke; besides, one sharp cut about his legs will affect him more than two or three over his back, the skin on the inner part of his legs or about his flank being thinner, more tender, than on his back. But do not whip him much—just enough to scare him; it is not because we want to hurt the horse that we whip him, we only do it to scare that bad disposition out of him. But whatever you do, do quickly, sharply, and with a good deal of fire, but always without anger. If you are going to scare him at all you must do it at once. Never go into a pitched battle with your horse, and whip him until he is mad and will fight you; you had better not touch him at all, for you will establish, instead of fear and regard, feelings of resentment, hatred, and ill-will. It will do him no good, but an injury, to strike a blow, unless you can scare him; but if you succeed in scaring him, you can whip him without making him mad; for fear and anger never exist together in the horse, and as soon as one is visible, you will find that the other has disappeared. As soon as you have frightened him so that he will stand up straight and pay some attention to you, approach him again, and caress him a good deal more than you whipped him, then you will excite the two controlling passions of his nature, love and fear, and then he will love and fear you too, and as soon as he learns what to do, will obey quickly.

HOW TO HALTER AND LEAD A COLT.

As soon as you have gentled the colt a little, take the halter in your left hand and approach him as before, and on the same side that you have gentled him. If he is very timid about your approaching closely to him, you can get up to him quicker by making the whip a part of your arm, and reaching out very gently with the butt end of it; rubbing him lightly on the neck, all the time getting a little closer, shortening the whip by taking it up in your hand, until you finally get close enough to put your hands on him. If he is inclined to hold his head from you, put the end of the halter-strap around his neck, drop your whip, and draw very gently; he will let his neck give, and you can pull his head to you. Then take hold of that part of the halter which buckles over the top of his head, and pass the long side, or that part which goes into the buckle, under the neck, grasping it on the opposite side with your right hand, letting the first strap loose—the latter will be sufficient to hold his head to you. Lower the halter a little just enough to get his nose into that part which goes around it; then raise it somewhat, and fasten the top buckle, and you will have it all right. The first time you halter a colt you should stand on the left side, pretty well back to his shoulder, only taking hold of that part of the halter that goes around his neck; then with your two hands about his neck you can hold his head to you, and raise the halter on it without making him dodge by putting your hands about his nose. You should have a long rope or strap ready, and as soon as you have the halter on, attach this to it, so that you can let him walk the length of the stable without letting go of the strap, or without making him pull on the halter, for if you only let him feel the weight of your hand on the halter, and give him rope when he runs from you, he will never rear, pull, or throw himself, yet you will be holding him all the time, and doing more towards gentling him than if you had the power to snub him right up and hold him to one spot; because, he does not know anything about his strength, and if you don't do anything to make him pull, he will never know that he can. In a few minutes you can begin to control him with the halter, then shorten the distance between yourself and the horse by taking up the strap in your hand.

As soon as he will allow you to hold him by a tolerably short strap, and to step up to him without flying back, you can begin to give him some idea about leading. But to do this, do not go before and attempt to pull him after you, but commence by pulling him very quietly to one side. He has nothing to brace either side of his neck, and will soon yield to a steady, gradual pull of the halter; and as soon as you have pulled him a step or two to one side, step up to him and caress him, and then pull him again, repeating this operation until you can pull him around in every direction, and walk about the stable with him, which you can do in a few minutes, for he will soon think when you have made him step to the right or left a few times, that he is compelled to follow the pull of the halter, not knowing that he has the power to resist your pulling; besides, you have handled him so gently that he is not afraid of you, and you always caress him when he comes up to you, and he likes that, and would just as lief follow you as not. And after he has had a few lessons of that kind, if you turn him out in a lot, he will come up to you every opportunity he gets. You should lead him about in the stable some time before you take him out, opening the door, so that he can see out, leading him up to it and back again, and past it. See that there is nothing on the outside to make him jump when you take him out, and as you go out with him, try to make him go very slowly, catching hold of the halter close to the jaw with your left hand, while the right is resting on the top of the neck, holding to his mane. After you are out with him a little while, you can lead him about as you please. Don't let any second person come up to you when you first take him out; a stranger taking hold of the halter would frighten him, and make him run. There should not even be any one standing near him to attract his attention or scare him. If you are alone, and manage him rightly, it will not require any more force to lead or hold him than it would to manage a broke horse.

HOW TO LEAD A COLT BY THE SIDE OF A BROKE HORSE.

If you should want to lead your colt by the side of another horse, as is often the case, I would advise you to take your horse into the stable, attach a second strap to the colt's halter, and lead your horse up alongside of him. Then get on the broke horse, and take one strap around his breast, under his martingale (if he has any on), holding it in your left hand. This will prevent the colt from getting back too far: besides, you will have more power to hold him, with the strap pulling against the horse's breast. The other strap take up in your right hand, to prevent him from running ahead. Then turn him about a few times in the stable; and, if the door is wide enough, ride out with him in that position. If not, take the broke horse out first, and stand his breast up against the door. Then lead the colt to the same spot; and take the straps as before directed, one on each side of his neck. Then let some one start the colt out; and, as he comes out, turn your horse to the left; and you will have them all right.

This is the best way to lead a colt. You can manage any kind of colt in this way without any trouble; for if he tries to run ahead or pull back, the two straps will bring the horses facing each other, so that you can very easily follow up his movements, without doing much holding; and as soon as he stops running backward, you are right with him, and all ready to go ahead; and if he gets stubborn, and does not want to go, you can remove all his stubbornness by riding your horse against his neck, thus compelling him to turn to the right; and after you have turned him about a few times, he will be willing to go along. The next thing, after you are through leading him, will be to take him into a stable, and hitch him in such a way as not to have him pull on the halter. And, as they are often troublesome to get into a stable the first few times, I will give you some instructions about getting him in.

HOW TO LEAD A COLT INTO THE STABLE, AND HITCH HIM, WITHOUT HAVING HIM PULL ON THE HALTER.

You should lead the broke horse into the stable first; and get the colt, if you can, to follow in after him. If he refuses to go, step up to him, taking a little stick or switch in your right hand. Then take hold of the halter, close to his head, with your left hand, at the same time reaching over his back with your right arm, so that you can tap him on the opposite side with your switch. Bring him up facing the door; tap him lightly with your switch, reaching as far back with it as you can. This tapping, by being pretty well back, and on the opposite side, will drive him ahead, and keep him close to you: then, by giving him the right direction with your left hand, you can walk into the stable with him. I have walked colts into the stable this way in less than a minute, after men had worked at them half-an-hour, trying to pull them in. If you cannot walk him in at once in this way, turn him about, and walk him around in every direction, until you can get him up to the door without pulling at him. Then let him stand a few minutes, keeping his head in the right direction with the halter; and he will walk in in less than ten minutes. Never attempt to pull the colt into the stable. That would make him think at once that it was a dangerous place; and, if he was not afraid of it before, he would be then. Besides, we do not want him to know anything about pulling on the halter. Colts are often hurt, and sometimes killed, by trying to force them into the stable; and those who attempt to do it in that way, go into an uphill business, when a plain smooth road is before them.

If you want to hitch your colt, put him in a tolerably wide stall, which should not be too long, and should be connected by a bar or something of that kind to the partition behind it; so that, after the colt is in, he cannot get far enough back to take a straight backward pull on the halter. Then, by hitching him in the centre of the stall, it would be impossible for him to pull on the halter; the partition behind preventing him from going back, and the halter in the centre checking him every time he turns to the right or left. In a state of this kind, you can break every horse to stand hitched by a light strap anywhere, without his ever knowing anything about pulling. But if you have broken your horse to lead, and have learned him the use of the halter (which you should always do before you hitch him to anything), you can hitch him in any kind of a stall, and give him something to eat, to keep him up to his place for a few minutes at first; and there is not one colt in fifty that will pull on his halter.

THE KIND OF BIT, AND HOW TO ACCUSTOM A HORSE TO IT.

You should use a large smooth snaffle-bit, so as not to hurt his mouth, with a bar to each side, to prevent the bit from pulling through either way. This you should attach to the head-stall of your bridle, and put it on your colt without any reins to it; and let him run loose in a large stable or shed some time, until he becomes a little used to the bit, and will bear it without trying to get it out of his mouth. It would be well, if convenient, to repeat this several times before you do anything more with the colt. As soon as he will bear the bit, attach a single rein to it, without any martingale. You should also have a halter on your colt, or a bridle made after the fashion of a halter, with a strap to it, so that you can hold him or lead about, without pulling on the bit much. He is now ready for the saddle.

HOW TO SADDLE A COLT.

Any one man, who has this theory, can put a saddle on the wildest colt that ever grew, without any help, and without scaring him. The first thing will be to tie each stirrup-strap into a loose knot, to make them short, and prevent the stirrups from flying about and hitting him. Then double up the skirts, and take the saddle under your right arm, so as not to frighten him with it as you approach. When you get to him, rub him gently a few times with your hand; and then raise the saddle very slowly, until he can see it, and smell and feel it with his nose. Then let the skirt loose, and rub it very gently against his neck, the way the hair lies, letting him hear the rattle of the skirts as he feels them against him, each time getting a little farther backward; and, finally, slip it over his shoulders on his back. Shake it a little while with your hand; and in less than five minutes you can rattle it about over his back as much as you please, and pull it off and throw it on again, without his paying much attention to it.

As soon as you have accustomed him to the saddle, fasten the girth. Be careful how you do this. It often frightens the colt when he feels the girth binding him, and making the saddle fit tight on his back. You should bring up the girth very gently, and not draw it too tight at first—just enough to hold the saddle on. Move him a little, and then girth as tight as you choose, and he will not mind it.

You should see that the pad of your saddle is all right before you put it on, and that there is nothing to make it hurt him, or feel unpleasant to his back. It should not have any loose straps on the back part of it, to flap about and scare him. After you have saddled him in this way, take a switch in your right hand to tap him up with, and walk about in the stable a few times, with your right arm over your saddle, taking hold of the reins on each side of his neck with your right and left hands, thus marching him about in the stable until you learn him the use of the bridle, and can turn him about in any direction, and stop him by a gentle pull of the rein. Always caress him, and loose the reins a little every time you stop him.

You should always be alone, and have your colt in some tight stable or shed the first time you ride him. The loft should be high, so that you can sit on his back without endangering your head. You can teach him more in two hours' time, in a stable of this kind, than you could in two weeks in the common way of breaking colts—out in an open place. If you follow my course of treatment, you need not run any risk, or have any trouble in riding the worst kind of horse. You take him a step at a time, until you get up a mutual confidence and trust between yourself and horse. First learn him to lead and stand hitched; next, acquaint him with the saddle and the use of the bit; and then all that remains is to get on him without scaring him; and you can ride him as well as any horse.

HOW TO MOUNT THE COLT.

First gentle him well on both sides, about the saddle, and all over, until he will stand still without holding, and is not afraid to see you anywhere about him.

As soon as you have him thus gentled, get a small block, about one foot or eighteen inches in height, and set it down by the side of him, about where you want to stand to mount him; step up on this, raising yourself very gently; horses notice every change of position very closely, and if you were to step up suddenly on the block, it would be very apt to scare him; but, by raising yourself gradually on it, he will see you, without being frightened, in a position very near the same as when you are on his back.

As soon as he will bear this without alarm, untie the sirrup-strap next to you, and put your left foot into the stirrup, and stand square over it, holding your knee against the horse, and your toe out, so as to touch him under the shoulder with the toe of your boot. Place your right hand on the front of the saddle, and on the opposite side of you, taking hold of a portion of the mane and the reins, as they hang loosely over his neck, with your left hand; then gradually bear your weight on the stirrup, and on your right hand, until the horse feels your whole weight on the saddle; repeat this several times, each time raising yourself a little higher from the block, until he will allow you to raise your leg over his croup, and place yourself in the saddle.

There are three great advantages in having a block to mount from. First, a sudden change of position is very apt to frighten a young horse who has never been handled: he will allow you to walk up to him, and stand by his side without scaring at you, because you have gentled him to that position; but if you get down on your hands and knees and crawl towards him, he will be very much frightened; and upon the same principle, he would frighten at your new position if you had the power to hold yourself over his back without touching him. Then the first great advantage of the block is to gradually gentle him to that new position in which he will see you when you ride him.

Secondly, by the process of leaning your weight in the stirrups, and on your hand, you can gradually accustom him to your weight, so as not to frighten him by having him feel it all at once. And, in the third place, the block elevates you so that you will not have to make a spring in order to get on the horse's back, but from it you can gradually raise yourself into the saddle. When you take these precautions, there is no horse so wild but what you can mount him without making him jump. I have tried it on the worst horses that could be found, and have never failed in any case. When mounting, your horse should always stand without being held. A horse is never well broken when he has to be held with a tight rein when mounting; and a colt is never so safe to mount as when you see that assurance of confidence, and absence of fear, which cause him to stand without holding.

HOW TO RIDE THE COLT.

When you want him to start do not touch him on the side with your heel or do anything to frighten him and make him jump. But speak to him kindly, and if he does not start pull him a little to the left until he starts, and let him walk off slowly with the reins loose. Walk him around in the stable a few times until he gets use to the bit, and you can turn him about in every direction and stop him as you please. It would be well to get on and off a good many times until he gets perfectly used to it, before you take him out of the stable.

After you have trained him in this way, which should not take you more than one or two hours, you can ride him any where you choose without ever having him jump or make any effort to throw you.

When you first take him out of the stable be very gently with him, as he will feel a little more at liberty to jump or run, and be a little easier frightened than he was while in the stable. But after handling him so much in the stable he will be pretty well broken, and you will be able to manage him without trouble or danger.

When you first mount him take a little the shortest hold on the left rein, so that if anything frightens him you can prevent him from jumping by pulling his head around to you. This operation of pulling a horse's head around against his side will prevent any horse from jumping ahead, rearing up, or running away. If he is stubborn and will not go, you can make him move by pulling his head around to one side, when whipping would have no effect. And turning him round a few times will make him dizzy, and then by letting him have his head straight, and giving him a little touch with the whip, he will go along without any trouble.

Never use martingales on a colt when you first ride him; every movement of the hand should go right to the bit in the direction in which it is applied to the reins, without a martingale to change the direction of the force applied. You can guide the colt much better without it, and teach him the use of the bit in much less time. Besides, martingales would prevent you from pulling his head around if he should try to jump.

After your colt has been ridden until he is gentle and well accustomed to the bit, you may find it an advantage if he carries his head too high, or his nose too far out, to put martingales on him.

You should be careful not to ride your colt so far at first as to heat, worry, or tire him. Get off as soon as you see he is a little fatigued; gentle him and let him rest; this will make him kind to you, and prevent him from getting stubborn or mad.

THE PROPER WAY TO BIT A COLT.

Farmers often put bitting harness on a colt the first thing they do to him, buckling up the bitting as tight as they can draw it to make him carry his head high, and then turn him out in a lot to run half a day at a time. This is one of the worst punishments that they could inflict on the colt, and very injurious to a young horse that has been used to running in the pastures with his head down. I have seen colts so injured in this way that they never got over it.

A horse should be well accustomed to the bit before you put on the bitting harness, and when you first bit him you should only rein his head up to that point where ne naturally holds it, let that be high or low; he will soon learn that he cannot lower his head, and that raising it a little will loosen the bit in his mouth. This will give him the idea of raising his head to loosen the bit, and then you can draw the bitting a little tighter every time you put it on, and he will still raise head to loosen it; by this means you will gradually get his head and neck in the position you want him to carry it, and give him a nice and graceful carriage without hurting him, making him mad, or causing his mouth to get sore.

If you put the bitting on very tight the first time, he cannot raise his head enough to loosen the it, but will bear on it all the time, and paw, sweat, and throw himself. Many horses have been killed by falling backward with the bitting on: their heads being drawn up, strike the ground with the whole weight of the body. Horses that have their heads drawn up tightly should not have the bitting on more than fifteen or twenty minutes at a time.

HOW TO DRIVE A HORSE THAT IS VERY WILD AND HAS ANY VICIOUS HABITS.

Take up one fore foot and bend his knee till his hoof is bottom upwards, and nearly touching his body; then slip a loop over his knee, and up until it comes above the pastern joint to keep it up, being careful to draw the loop together between the hoof and pastern joint with a second strap of some kind, to prevent the loop from slipping down and coming off. This will leave the horse standing on three legs; you can now handle him as you wish, for it is utterly impossible for him to kick in this position. There is something in this operation of taking up one foot that conquers a horse quicker and better than anything else you can do to him. There is no process in the world equal to it to break a kicking horse, for several reasons. First, there is a principle of this kind in the nature of the horse—that by conquering one member you conquer to a great extent the whole horse.

You have perhaps seen men operate upon this principle by sewing a horse's ears together to prevent him from kicking. I once saw a plan given in a newspaper to make a bad horse stand to be shod, which was to fasten down one ear. There were no reasons given why you should do so; but I tried it several times, and thought that it had a good effect—though I would not recommend its use, especially stitching his ears together. The only benefit arising from this process is, that by disarranging his ears we draw his attention to them, and he is not so apt to resist the shoeing. By tying up one foot we operate on the same principle to a much better effect. When you first fasten up a horse's foot he will sometimes get very mad, and strike with his knee, and try every possible way to get it down; but he cannot do that, and will soon give up.

This will conquer him better than anything you could do, and without any possible danger of hurting himself or you either, for you can tie up his foot and sit down and look at him until he gives up. When you find that he is conquered, go to him, let down his foot, rub his leg with your hand, caress him, and let him rest a little; then put it up again. Repeat this a few times, always putting up the same foot, and he will soon learn to travel on three legs so that you can drive him some distance. As soon as he gets a little used to this way of travelling, put on your harness, and hitch him to a sulky. If he is the worst kicking horse that ever raised a foot you need not be fearful of his doing any damage while he has one foot up, for he cannot kick, neither can he run fast enough to do any harm. And, if he is the wildest horse that ever had harness on, and has run away every time he has been hitched, you can now hitch him in a sulky, and drive him as you please. And, if he he wants to run, you can let him have the lines, and the whip too, with perfect safety, for he can go but a slow gait on three legs, and will soon be tired, and willing to stop; only hold him enough to guide him in the right direction, and he will soon be tired and willing to stop at the word. Thus you will effectually cure him at once of any further notion of running off. Kicking horses have always been the dread of everybody; you always hear men say, when they speak about a bad horse, "I dont' care what he does, so he don't kick." This new method is an effectual cure for this worst of all habits. There are plenty of ways by which you can hitch a kicking horse, and force him to go, though he kicks all the time; but this doesn't have any good effect towards breaking him, for we know that horses kick because they are afraid of what is behind them, and when they kick against it and it hurts them they will only kick the harder; and this will hurt them still more and make them remember the scrape much longer, and make it still more difficult to persuade them to have any confidence in anything dragging behind them ever after.

But by this new method you can hitch them to a rattling sulky, plough, waggon, or anything else in its worst shape. They may be frightened at first, but cannot kick or do anything to hurt themselves, and will soon find that you do not intend to hurt them, and then they will not care anything more about it. You can then let down the leg and drive along gently without any further trouble. By this new process a bad kicking horse can be learned to go gently in harness in a few hours' time.

(To be concluded in our next.)

QUEEN MARY,

THE DAM OF BLINK BONNY AND HARICOT.

Queen Mary, bred by Mr. Dennis in 1843, is by Gladiator, her dam (foaled in 1840) by Plenipotentiary, out of Myrrha by Whalebone.

Gladiator (foaled in 1833) was by Partizan, out of Pauline by Moses. He is well known as a stud horse.

Queen Mary's dam, bred by Mr. Watt, was also the dam of Beverlac, Ruth, The Prior, Britannia, Myrtle, and others. She died in 1854.

Queen Mary is a bright-yellow bay mare, standing about fifteen hands three inches high. She has a very blood-like head, with a full, fiery eye, and strong neck, adorned with but a rough, scratchy mane. She has good shoulders, and that peculiar prominence of the pectoral muscle so remarkable in Blink Bonny. She has powerful arms, short legs, and a roomy barrel; is high or the rump, drooping towards the tail, which, unlike her famous daughter's, is full and long. Queen Mary is but a queer-tempered mare, very wild in the paddock, and blowing defiance to any stranger who approaches her or hers. In our picture she is standing guard over the latest hope of the family, Miss Bab-at-the-Bowster. In the better months of the year, Queen Mary shows a coat shining like satin; and she makes up, as we think will be admitted, into a very pretty subject.

Queen Mary was put to the stud in 1846, and in 1847 threw her first foal Haricot, by Mango, or Lanercost. Another filly, by Mango, in 1848, died when a foal, and Mr. Ramsay during the following year. On his decease, Queen Mary, with her third foal, Braxey by Moss Trooper, at her foot, and in foal to Annandale with Balrownie, was sold amongst the other horses, to Mr. Carnegie, of Balnamon, for twenty pounds. Mr. I'Anson subsequently reclaimed her with Balrownie, then a foal, for a hundred guineas the two, and another ten-pound note for Braxey.

The following is the correct return of Queen Mary's produce :—

1847. Brown filly "Haricot," by Mango, or Lanercost.
1848. Filly by Mango (died a foal).
1849. Bay filly "Braxey," by Moss Trooper.
1850. Bay colt "Balrownie," by Annandale.
1851. Bay colt (half-bred) by Ferneley.
1852. Bay filly "Blooming Heather," by Melbourne.
1853. Bay colt "Bonnie Scotland," by Iago.
1854. Bay filly "Blink Bonny," by Melbourne.
1855. Missed to Touchstone.
1856. Brown colt "Balnamoon," by Annandale.
1857. Bay filly "Bab-at-the-Bowster," by Annandale.

Queen Mary.

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ROYAL AGRICULTURAL SOCIETY OF ENGLAND.

A WEEKLY COUNCIL was held on Wednesday, the 23rd of June. Present: Sir John V. B. Johnstone, Bart., M.P., Vice-President, in the Chair; Mr. Beale Browne (High Sheriff of the county of Gloucester); Mr. Davey, M.P.; MM. E. and L. Dumont (from Belgium), Mr. Fisher Hobbs, Mr. Mundy, Mr. Rotton, Mr. Burch Western, and Mr. Wilson (of Stowlangtoft).

PRIZE ESSAY.—Mr. Thompson, Chairman of the Journal Committee, reported the following adjudication:—

> To ROBERT VALLENTINE, of Burcott Lodge, Leighton Buzzard, the prize of £20 for his Essay on the Comparative Advantages of Large and Small Farms, whether adapted for Dairy, Arable, or Grazing purposes.

BIRD ISLAND GUANO.—Professor Voelcker, the consulting chemist of the Society, transmitted the following analysis of guano which a few weeks ago had been offered for sale, by public auction in London, at the rate of £5 per ton, but which appeared to him an entirely artifical compound, made up of more than half its bulk of plaster of Paris, or gypsum, and containing less than one-half per cent. of ammonia:—

Copy of an Analysis of a Sample of so-called Bird's Island Guano, sent by Mr. Ernest, London:—

Moisture	9·78
Water of combination and a little organic matter*	14·78
Bi-phosphate of lime (soluble phosphate)	2·66
Insoluble phosphates (bone-earth)	10·43
Sulphate of lime	58·02
Alkaline salts and magnesia	2·98
Insoluble siliceous matter (sand)	1·35
	100·00
*Containing nitrogen	·85
Equal to ammonia	·42

May, 1858. AUGUSTUS VOELCKER.

DRAINAGE.—The Council having taken into further consideration the series of questions on drainage received, through the Board of Trade and the Foreign Office, from the French Government, referred them to the final decision of the Monthly Council on the 7th of July.

Messrs. Purdon, of Dublin, presented to the Society the first volume of their Irish Herd Book.

The Council adjourned to Wednesday, the 30th June.

A WEEKLY COUNCIL was held on Wednesday, the 30th of June; present: Colonel Challoner, Trustee (in the chair); Lord Bridport; Hon. William George Cavendish, M.P.; Mr. Raymond Barker; Mr. Corbet; Mr. Baskerville Glegg; Mr. Langston, M.P.; Professor Simonds; Mr. Vyner; and Mr. Burch Weston.

SEWAGE.—The following letter was read:—

"J. Hudson, Esq., &c.

"DEAR SIR,—As I have an important engagement, which will prevent my attending the meeting of the Council to-morrow, will you ask the President or Chairman of the day to allow these few lines to be read, as I am anxious that no time should be lost in calling the attention of the Council to a very valuable report which has lately been published on the question which is now occupying so much of the public attention, viz., 'the best mode of dealing with the sewage of London and other great towns.' A copy of this report has lately been presented to the Society by Mr. Way, our late Consulting Chemist, who is one of the Commissioners appointed last year to inquire into this question; and I have no hesitation in recommending their above-mentioned report to the Royal Agricultural Society, as one deserving of the utmost attention and support. It combines, with an efficient mode of removing the nuisance, all the other advantages contemplated in connection with the scheme, viz., the embankment of the river so as to obtain an ornamental and most important thoroughfare along its banks, and also the preservation of some portion of the fertilizing matter for agricultural purposes. The estimate of the cost is also much below that of some other plans which have been proposed. I beg to suggest that an application should be made to the Commissioners to furnish the Society with a copy of their report for each Member of Council.

"I am, dear sir, yours faithfully,

"H. S. THOMPSON.

"Chairman of Journal Committee.

"June 29, 1858."

GUANO RATES.—Mr. Frere, of Roydon Hall, Norfolk, called the attention of the Council to the following statement which had appeared in the public papers:—

> "A Correspondent informs us that the Peruvian Government charge £1 12s. per ton more to British Farmers than to those in the United States, the freight being the same. Is this true? If so, there ought to be a remedy *somewhere.*"

Mr. Bolton presented a copy of his "Principles of Animal Nutrition," and the Rev. William Townsend, Rector of Aghadda, near Cloyne, of his papers on "Gorse as Food for Cows and Horses."

RAILWAY CONVEYANCE.—The Directors of the Chester and Birkenhead Railway Company expressed, through their General Manager, Mr. Mason, their desire to render every facility to the Society's exhibitions at the Chester Meeting, in the free conveyance of live stock, and reduced rates of charge for implements.

LECTURE.—Professor Simonds delivered the concluding part of his lecture on the "Composition of the Blood, and its Conditions under Disease, in Domesticated Animals." On the motion of Mr. Baskerville Glegg, seconded by Mr. Burch Western, the thanks of the Council were passed unanimously to Professor Simonds, for the interesting and most instructive lecture he had then delivered. Adjourned to July 7.

A MONTHLY COUNCIL was held on Wednesday, the 7th of July: present, Lord Berners, President, in the Chair, Earl of Powis, Lord Walsingham, Lord Portman, Hon. Colonel Hood, Hon. William George Cavendish, M.P., Sir Charles Morgan, Bart., Sir John V. B. Johnstone, Bart., M.P., Sir Philip Grey Egerton, Bart., M.P., Sir Archibald Keppel Macdonald, Bart., Mr. Amos, Mr. Raymond Barker, Mr. Hodgson Barrow, M.P., Mr. Bramston, M.P., Colonel Challoner, Mr. Druce, Mr. Brandreth Gibbs, Mr. Hamond, Mr. Fisher Hobbs, Mr. Wren Hoskyns, Mr. Humberston

(Mayor of Chester), Mr. Hutton, Mr. Lawrence, Mr. Milward, Mr. Pain, Mr. Pope, Mr. Shuttleworth, Prof. Simonds, Mr. Robert Smith, Mr. Banks Stanhope, M.P., Mr. Torr, Colonel Towneley, Mr. Turner (of Barton), Prof. Voelcker, Mr. Vyner, and Mr. Jonas Webb.

The Earl of Portsmouth, of Hurstborne Park, Hampshire, and Lord Londesborough, of Grimstone, Yorkshire, were elected Governors of the Society.

The following new Members were elected:

Barchard, Francis, Horstead Place, Uckfield, Sussex.
Bevan, Beckford, Bury St. Edmund's, Suffolk.
Buchanan, Walter, Lower Babington, Birkenhead.
Burnett, Gregory, Dee Cottage, Flint.
Chadwick, William, Burlish Lodge, Stourport, Worcestershire.
Darling, John, Beau Desert, Rugeley, Staffordshire.
Egerton, William Tatton, M.P., Tatton Park, Knutsford.
Fenn, John, Dry-Drayton, Cambridgeshire.
Gubbins, John Panton, Rhual, Mold, Flintshire.
Heywood, William Henry, Dunham Park, Altringham, Cheshire.
Hughes, Hugh Robert, Ystrad, Denbighshire.
Johnson, Thomas, Alton Grange, Runcorn, Cheshire.
Kemp, H. F., South Carlton, Lincolnshire.
Kirby, Stephen, Mill House, Thirsk, Yorkshire.
Minor, John, Fern Hill, Market-Drayton, Salop.
Moore, Joseph, Wollaton House, Nottingham.
Paine, Mrs., Farnham, Surrey.
Pinder, Thomas, Barroby, Grantham, Lincolnshire.
Stone, John S., Newport, Monmouthshire.
Way, Lewis, Spencer Grange, Great Yeldham, Essex.
West, Rev. Washbourne, Lincoln College, Oxford.
Willsher, Charles Wedd, Petches Farm, Weathersfield, Essex.
Wise, Henry, Feltons-Brickham, Reigate, Surrey.

FINANCES.—Mr. Raymond Barker, Chairman of the Finance Committee, presented the monthly report on the accounts, from which it appeared that the current cash-balance in the hands of the bankers was £2,225, and that Messrs. Williams and Co., of Chester, had accepted the appointment of the local bankers of the Society during the period of the Chester meeting.—Mr. Wilson (of Stowlangtoft) transmitted, on the part of himself, Sir John V. B. Johnstone, Bart., M.P., and Mr. Fisher Hobbs, a special report of the House Committee, which was unanimously adopted and confirmed.

CHESTER MEETING.—Colonel Challoner presented the report of the General Chester Committee, detailing the satisfactory completion of the arrangements for the Society's ensuing Country Meeting to be held in that city in the week commencing Monday, the 19th inst.

DINNER TICKETS.—The Council decided that members of the Society should be at liberty to purchase dinner tickets at the office of the Society, 12, Hanover-square, London, until Thursday, the 15th inst.; and that any tickets remaining on hand at that date should be sold to the public without reserve on the Tuesday, Wednesday, and Thursday of the Show week, at the Finance Department, adjoining the public entrances of the Show-yard at Chester.

IMPLEMENTS.—Colonel Challoner reported from the Implement Committee that the question of the renewal or discontinuance of the triennial arrangement for the trial of implements, to be completed for the first time at the Chester Meeting, and the propriety of an earlier publication of the Implement Prize-sheet of the Society, would be taken into consideration after the autumn recess, in the first week in November. He also stated that measures would be taken to aid the Society of Arts in their desire to obtain the results of practical experience in the agricultural use of Gutta-percha; and to carry out the benevolent suggestions of the Rev. W. W. Harvey, of Buckland Rectory, near Buntingford, in reference to the prevention of accidents in the use of agricultural machinery, by empowering the judges to make special awards of medals or commendations for efficient modes of guarding or shielding machinery, especially when worked by steam, from contact with the persons immediately engaged in attending to it while at work.

MEMBER OF COUNCIL.—On the motion of Mr. Fisher Hobbs, seconded by Mr. Lawrence, Mr. James Thomas, of Lidlington, Bedfordshire, was unanimously elected a general member of the Council in the place of the late Mr. Paine, of Farnham.

QUERIES ON DRAINAGE.—On the motion of Lord Walsingham, seconded by Colonel Challoner, the Council resolved that the Queries on Drainage received from the Board of Trade should be printed in French and English, and a copy sent to each Member of the Council, with a request that the answers in each case may be forwarded to the Secretary by the 31st instant, for the purpose of being submitted to the following Special Committee, in order to enable them to present their report on the subject at the next Monthly Council in August., viz., Lord Walsingham, Sir John V. Shelley, Bart, M.P., Colonel Challoner, Mr. Fisher Hobbs, Mr. Milward, and Mr. Robert Smith.

JUDGES.—Colonel Challoner having presented the report of the Implement Committee, Mr. Fisher Hobbs the report of the Live Stock Judges Committee, and the Mayor of Chester his suggestions for the Judges of Cheese and Butter, the Council confirmed in each case the recommendation thus made to them of Judges in the several departments of the Show at the Chester Meeting.

STEWARD OF CATTLE.—On the motion of Lord Walsingham, seconded by the Hon. Colonel Hood, Mr. Pain, of Laverstock Hall, near Salisbury, was appointed one of the Stewards of Cattle at the Chester Meeting.

ADJOURNMENT.—On the motion of Mr. Raymond Barker, the Council's sittings in London were adjourned over the Chester Meeting to the first Wednesday in August.

MORAL OF THE GARDEN.—Nothing teaches patience like a garden. All have to wait for the fruits of the earth. You may go round and watch the opening bud from day to day; but it takes its own time, and you cannot urge it on faster than it will. If forced, it is only torn to pieces. All the best results of a garden, like those of life, are slowly but regularly progressive. Each year does a work that nothing but a year can do. "Learn to labour and to wait," is one of the best lessons of a garden. All that is good takes time, and comes only by growth.

THE SUGAR MILLET.

The letters of "The English Farmer in France," which have appeared in our columns lately, have directed prominent attention to the Sorghum; and as we have before us at the present moment a large amount of information connected with its introduction and attempted culture in various quarters, we shall endeavour to summarize these for more ready reference by those who are desirous of investigating the matter or experimentalizing on the plant. The subject appears to be attracting attention in France, Spain, and other parts of the continent, in the United States and Canada, and in Australia. Very full details have been published in many of the American journals, in the Report on Agriculture of the American Commissioners of Patents, in the transactions of the Canadian agricultural Societies, and elsewhere.

It appears to be eminently useful as a forage plant, irrespective even of its saccharine juice. The average yield of cane, according to Mr. Wray, is stated to be as much as 20 tons, and of seed 60 bushels, to the acre. The Chinese millet (the Sorghum saccharatum) has large black seeds; the other variety of the same plant (the African imphee, as it has been termed) has much smaller and lighter seed; but, like maize, there appear to be numberless varieties of the same species, resulting from climate, culture, soil, and locality. The seed is reported to be useful as a bread-corn, and also valuable for starch-making. The culture of the plant has not been very successful in England, but then we are not aware that it has been tried to any extent as a forage crop.

Since its introduction into the United States, this plant has proved itself well adapted to the geographical range of Indian corn. It is of easy cultivation, being similar to that of maize or of brown corn; and if the seeds are planted in May in the middle States, or still earlier at the South, two crops of fodder can be grown in a season from the same roots, irrespective of drought: the first one in June or July, to be cut before the panicles appear, which would be green and succulent like young Indian corn; and the other a month or two later, when or before the seed is fully matured. It appears to resist the effects of considerable frost without injury, after the panicles appear. Those who wish to sow the seed should not cultivate it in the vicinity of Dourah corn (Sorghum vulgare)—of another species of millet, known as chocolate corn in Virginia—nor of broom corn, as it hybridizes or mixes freely with those plants, which would render the seeds of the product unfit for that use. The Patent Commissioners' Report (Washington) states that "The amount of fodder which this plant will produce to the acre, with ordinary cultivation, may be safely estimated at 7 tons when green, or at least 2 tons per acre when thoroughly cured. The stalks when nearly mature are filled with a rich saccharine juice, which may be converted into sugar, syrup, alcohol, or beer, or may be used for dyeing wool or silk a permanent red or pink; and the entire plant is devoured with avidity, either in a green or a dry state, by horses, cattle, sheep, and swine."

In cultivating it for sugar, the American writers recommend that the Sorghum should be allowed to perfect its seeds, "and that such as do not perfect their seeds will afford but little or no sugar." Now this is adverse to the common-sense view, and certainly contrary to practice in sugar-cane cultivation, for the canes are never allowed to "arrow" or flower before they are cut.

In Africa, the Kaffirs always take off the seed-head before maturing; and although seed-heads afterwards form upon side-heads, the cane is generally cut before these mature. The sap or juice of stalks not producing seed is more limpid and more readily crystallizable than from stalks that have ripened their seed. We therefore must doubt the assertion that "the proper time for cutting and making syrup is when the seed becomes black, and considerably hard and full in size; then the juice is in its best flavour, and will make the best-flavoured molasses."

From the experiments already carried on in Canada, it is not probable that this plant will suit for any purpose but that of a forage crop in the province. The sorghum is said to have matured its seed last year as far north as Montreal.

The failure of the sugar-cane in the United States, and the high price of sugar some time back, make the question of the discovery of a new sugar-producing plant of interest even to those who may not be able to grow it for that purpose. Inquiry has been lately set on foot in North America and Europe for saccharine plants adapted to the temperate zone, which may be profitably employed in the production of sugar. That there is no lack of plants from which sugar may be made, is well known. Indian-corn, the sugar-maple, and some other trees, the beet-root and sundry other esculents, contain and yield a considerable proportion of saccharine sap, but generally obtained at a cost above that at which it can be extracted from the cane.

The Sorghum saccharatum, or sugar millet, which has long been grown in China and Southern Africa for its sweet sap, is believed to be adapted to temperate latitudes, and will yield nearly or quite as bountifully, in view of this relative cost, as the tropical sugar-cane.

There are some statements put forth, with respect to this sugar millet, which are very questionable. Firstly, the opinion that the seeds are poisonous when fed to stock, is perfectly ridiculous. The seed of a variety of the imphee, the Kaffir millet—very similar in appearance, but different in character—is the staple corn food of the natives.

The Kaffirs never grind their millet to extract the flour, but boil it whole, in which form they consider the grain of the imphee to be highly deleterious. Mr. Wray, in his pamphlet on this corn, however, asserts that when allowed to perfect its seed the grain is generally plump and full of fine white flour, which he believes is wholesome and nutritious, and might enter largely into consumption. When the seeds of the imphee are ripe or perfectly full, it is the custom of the Zulu-Kaffirs to string them up in the sun and air for a few days, then to hang them up in their huts, so that they may have the full benefit of the smoke, which serves to keep them entirely dry, and likewise preserves the seed from the attacks of insects, so that they may be thus kept perfectly good for a series of years if necessary. Birds never attack the imphee, while they are very destructive to the seed of the Kaffir millet, or Guinea corn (Sorghum *vulgare*).

A statement that the hull of the seed is useful as a rose carmine dye, is, we conceive, unwarranted by experiment. Another suggestion—of getting wax from the canes—is sheer nonsense, and not worth the attention of the cultivator.

In many of the British colonies the cultivation of this plant may be worth trial. Mr. D. J. Browne, in his last report to the American Commissioners of Patents, states that, "aside from other economical uses, its value for feeding, to animals alone, in every section of the Union where it will thrive, cannot be surpassed by any other crop, as a greater amount of nutritious fodder cannot be obtained so cheap, on a given space, within so short a period of time."

THE APHIS (PLANT-LOUSE.)

I am not an entomologist, and therefore shall offer no observations of my own relative to those formidable little pests, now so alarmingly infesting almost every crop. The pea crop is partially destroyed by their ravages, many fields having been already mown for fodder; the bean crop is suffering very seriously; the ears of wheat are by no means exempt, and in many instances they have done much damage. The little rogues fasten themselves upon every kind of luxuriant herbage known to be suited to their different species and habits. The weed tribe are, for once, even kept in abeyance by them —"'tis an ill wind that blows no one any good." I send you the following condensed extract from *Morton's Cyclopædia of Agriculture*, written by that celebrated entomologist, Mr. Jas. Curtis:

"Plant-lice are amongst the most troublesome and injurious pests the farmer and gardener have to contend with, infesting wheat, turnips, beans, peas, hops, cabbages, roses, apple, cherry, currant, and other fruit-trees. They are furnished with a short beak, through which pass three of the finest bristles; these the animal inserts through a pore of the cuticle, the central one being tubular, and acting as a syphon. Thus, the aphides imbibe the juices from the leaves and stems, sometimes causing distortions from the vessels being wounded, and the circulation of the sap being interrupted. The infested leaves generally curl, so as to form cavities or hollow chambers beneath, where the aphides reside, and are thus protected from heat, cold, wet, and the attacks of little birds. If, therefore, it were not for the unceasing vigilance of carnivorous and parasitic insects, there would be no check to their multiplication. Amongst the most useful of these are the ladybirds and their larvæ, the aphis lions, the maggots of two-winged flies called syrphus, and others."

He then speaks of the difficulty in ascertaining where they breed: perhaps a single-winged insect is seen; their numbers daily increase; the nits are soon deposited—their numbers daily increase; the females in spring producing young, but in the autumn, when the males appear, only eggs. He then says:

"It is a still more startling fact that the spring broods are all females, and do not require any intercourse with the sexes to make them prolific. They are pregnant at their birth; and if the nit (as it is termed), brought forth by the fly in the spring, be taken and kept entirely excluded from its companions, it will be able to produce young; and if one of these be treated with the same precaution, it will yet be found to retain the same powers of conception: and thus one may proceed for twenty or thirty generations. This will explain their otherwise marvellous multiplication, and the warmer the weather the more rapidly families increase: so that it has been calculated by an eminent naturalist that from *one* egg 729,000,000 of plant-lice might be produced in seven generations; admitting forty to be the maximum, and twenty the minimum, the average would be thirty; and the generations from the spring to the autumn amount to from sixteen to twenty, or upwards. Réaumur has stated of another species, that *nearly sixty hundred millions* may proceed from *one* female in *five* generations. The first females produce about two young daily, for fifteen or twenty days. In ten days the third generation from the egg is capable of bearing young; these comprise both winged and apterous specimens, the former emigrating to spread the mischief; both these sorts are able to bear young in eight days, or even four, and so they proceed if the temperature prove congenial to their habits. The males are all winged, and do not appear till autumn. Both sexes are provided with a curious apparatus, forming two tubes, through which a sweet liquor exudes, and when it falls upon the surrounding foliage it is termed honey-dew."

He then states that the different species will occasionally swarm upon any plant, but such cases are exceptions; and further proceeds to give a most interesting description of several varieties, as—1st, the cabbage-leaf plant-louse (A. Brassicæ), which is very injurious to the cabbage tribe, and also to the Swedish turnip. 2nd, the black-spotted turnip-leaf plant-louse (A. Dubia). 3rd, the bean-plant louse, or Black Dolphin, (A. Fabe). 4th, the turnip-flower plant-louse (A. Florisrapæ); these infest the leaf of white, or common turnips in July and August. 5th, the wheat plant-louse (A. Granaria); it is sometimes abundant upon the ears of wheat, sucking the stem and impoverishing the grain. 6th, the hop fly (A. Humilia); the lady-birds pursue them on the hop leaves, and destroy them by thousands. 7th, the turnip-leaf plant-louse (A. Rapæ); and, 8th, the Indian Corn plant-louse (A. Zeæ). All of these are beautifully engraved, and shown magnified and in their natural size, in the columns of the Cyclopædia, to which I would refer my readers. Who can wonder at the destruction made by these formidable enemies, although so small? Their increase is most astonishing: in four days from their birth they breed, and that rapidly. Every farmer has viewed their progress and course upon his crops with surprise and wonder. At this very season, within a short distance from where I write, a crop of peas has been cut for fodder, which a few days ago were covered with blossoms, and looked healthy, and promising an abundant crop; and there appears no help for it. Cutting off the tops of beans is a partial good; and no effort in management can prevent their attacks, which may truly be considered unaccountable, as no season is altogether a preventive, but in hot and fine weather they most abound. I some time ago ventured to foretel an unusual attack from the insect tribe, as I believed their progenies were uninjured by the exceedingly fine and *un-English* winter through which we had passed—nor do I yet believe we have arrived at the worst. The black caterpillar has commenced ravaging the turnips in Yorkshire, and in August and September the caterpillar and grub may be expected to make work with late crops of green food and the pasture lands. There is no better remedy than a continuous course of good farming, with all its corresponding advantages. The hedge rows and ditch banks should all be annually cleansed, so that insects' deposits of every kind may be destroyed.

We have had many showers in this district in the past two days, which have dashed vast numbers of aphides to the ground. The wheats are tolerably clear this morning (July 7), although a good deal thrown down. The mangel crop has fared the best; not a leaf is seriously damaged, and it is growing luxuriantly. Swedes have a considerable number upon the leaves, but have not yet suffered severely. Cabbages look well and clear, and potato crop is tolerably free; but all these matters are causes for anxious care amongst farmers, and the general inquiry now is as to the state of the crops. I am pleased to be able to say that a fair prospect awaits us: all things are progressing, notwithstanding these untoward things, and an early harvest must ensue, and I believe it will upon the whole be a prolific one.

We have always some little drawback or other, and these aphides form the hindrance this year; but put against them this beautiful season—why it has brought up into full vigour every backward ear and shag of oats. We have only barley, beans, and peas somewhat defective, and these but partially. Should it please Him "who overrules all mortal things" to bless us with suitable weather for the ingathering of the harvest, it will be one of the best and most prosperous years we have for some time enjoyed, commencing as I do the farmer's year with the sowing of his spring grain.

THE GREAT ART OF HORSE-TAMING.

There is an old story of a clever showman at a country-fair who invited the people to walk up and see a horse with his head where his tail should be! With a horse-loving nation like ours, of course the thing took, and many a man paid his shilling to see—an animal turned round in his stall with his tail to the manger, and his head facing the audience. In a neat apologetic speech, the exhibitor begged the forbearance of his visitors, requesting as an especial favour that they would keep what they had seen a profound secret, as "there were sure to be plenty more fools in the fair."

"The horse-taming humbug," as it is now called, is said to have come to this. Never was there so complete a revulsion of popular feeling. Ten-guinea subscribers, who a week or two since shook their heads knowingly when you asked them a question, have been amongst the first to cry out. The coming man of the day before yesterday—the petted of palaces, and the hero of horsemen—is almost anything else you now choose to say of him. The simple fact is, there is no secret after all. We have Mr. Rarey's own word for this. In an evil hour he did what it is said any one would wish his enemy to do—he wrote a book. He details in this his own practice and reasoning—how to make a horse do almost everything he is declared to have done in the Round House. And there is scarcely an actual novelty in this book from one end to the other. It is still well worth looking through, and may be had anywhere for sixpence. At the same time the art, please to remember, is a profound secret. You or I certainly may try to practise it by our sixpenny book; but should his Grace, or my Lord, or Sir Harry dare openly to do so, he is liable at once to a five hundred pounds fine. There is a rich absurdity about this, altogether unparalleled.

A countryman of Mr. Rarey, a clockmaker by trade, has told us how fleeting a thing is "popularity—soon won, soon lost; cried up sky-high one minute, and desarted the next. The multitude are always fickle-minded." We have very little doubt but the last wonder amongst us will soon find how true this is; cried up sky-high one minute, and deserted the next. At the same time we must say we think either extreme would be alike unfair. Divest Mr. Rarey of his so-called secret, and he is still a wonderful man. His feats during the short time he has been amongst us—the taming of Cruiser, for instance—are such as no other man would have attempted. It is all very well, now the egg is broken, to proclaim that you and I could have done this, and that people have been doing it for ages. But they have not. They may have known the secret; although what, after all, is Mr. Rarey's great secret? As we take it, Mr. Rarey himself. Just as Van Amburgh conquered lions and tigers by sheer physical courage and resolution, does Mr. Rarey tame horses. It is well known that the experiments made by some of his pupils in the art have been the most ludicrous failures—little, if anything, short of what Mr. Briggs has been doing in *Punch*. Let Mr. Rarey exhibit here as he did in his own country, making no petty secret of the business, but showing us what he can do with the horse, and giving us useful hints and wrinkles, and he will still find plenty of support. It will always be a treat to see him bell the cat, and face a savage, although the golden age of ten-guinea fees may be over.

As everybody but the tongue-tied subscriber has long thought and said, the great move in conquering a vicious horse is tying-up the leg. "There is something in this operation of taking up one foot," says Mr. Rarey, "that conquers a horse quicker and better than anything else you can do to him. There is a principle of this kind in the nature of the horse—that by conquering one member you conquer to a great extent the whole horse." Further on he gives us in full his directions how to make a horse lie down. These are his own words:—

> "Everything that we want to teach the horse must be commenced in some way to give him an idea of what you want him to do, and then be repeated till he learns it perfectly. To make a horse lie down, bend his left fore leg and slip a loop over it, so that he cannot get it down. Then put a surcingle around his body, and fasten one end of a long strap around the other fore leg, just above the hoof. Place the other end under the surcingle, so as to keep the strap in the right direction; take a short hold of it with your right hand; stand on the left side of the horse, grasp the bit in your left hand, pull steadily on the strap with your right; bear against his shoulder till you cause him to move. As soon as he lifts his weight, your pulling will raise the other foot, and he will have to come on his knees. Keep the strap tight in your hand, so that he cannot straighten his leg if he rises up. Hold him in this position, and turn his head towards you; bear against his side with your shoulder, not hard, but with a steady, equal pressure, and in about ten minutes he will lie down. As soon as he lies down, he will be completely conquered, and you can handle him as you please. Take off the straps, and straighten out his legs; rub him lightly about the face and neck with your hand the way the hair lies; handle all his legs, and after he has lain ten or twenty minutes, let him get up again. After resting him a short time make him lie down as before. Repeat the operation three or four times, which will be sufficient for one lesson. Give him two lessons a day, and when you have given him four lessons, he will lie down by taking hold of one foot. As soon as he is well broken to lie down in this way, tap him on the opposite leg with a stick when you take hold of his foot, and in a few days he will lie down from the mere motion of the stick."

We have very little doubt in our own mind but that this is the main principle of Mr. Rarey's practice amongst us: a process especially recommended for its humanity and reasoning power. In reality it is not so. There is no more nervous or less grateful operation for a horseman to witness. The animal appears to suffer much, as well as to be in continual danger of breaking a limb. Mr. Cooke, a most respectable man, the proprietor of Astley's Theatre, illustrated the system for some nights, until at length compelled to desist in deference to the audience. He never failed in bringing the horse down; but the means *looked* at least so like slow torture, that the performer was greeted with continual hisses and such like marks of disapprobation. It is a grave question whether you may not break a horse's heart in thus breaking him in. We were present at one of the earlier of Mr. Rarey's mornings—fortunately before the ten-guinea era, and when the spectator was consequently not initiated—and the dog-like quiet of the horse he had operated on was something remarkable. We are told it is the same with Cruiser.

The now common topic is the case of the subscribers, and what they will do? A rather unfair attempt has been made to implicate the Messrs. Tattersall, from their having acted as a reference, and the horse-taming office being on their premises. Mr. Rarey, at any rate, came well recommended to them. He had been performing with great *éclat* before Her Majesty, and had whole columns of the *Times* speaking to his merits. No man, indeed, was ever better puffed. He would seem to have had an especial scribe or two to sing his praises and record his doings. One thing, however, is certain enough: if the main secret is *out*, it will never do for the Messrs. Tattersall to be sanctioning the payment of any more ten-guinea subscriptions We must rest content with the martyrdom of a Barthropp and a Ransome.

On the whole we are by no means disposed to underrate the advent of Mr. Rarey amongst us. As we said when we first saw his exhibition, "there is something in it." But this is not the country for secrets. They seldom flourish here, and a man who deals in them is soon set down for a humbug. Let Mr. Rarey honestly announce what he can do with the horse; let him even, if he likes, continue the zebra experiment, and there will be plenty of people ready to encourage him. Our own belief is, that he can do more with a savage horse than any man that ever yet tried. He is singularly well qualified for the business—with physical power, fine temper, and immense experience. By this time he can well afford to be above the quackery of secrets and whisperings.

As for "the more fools in the fair" who paid their ten guineas each, their loss or gain cannot much signify. The majority of them, no doubt, did so because it was "the fashion"—an excellent showing that carries with it its own reward.

GENERAL CENTRAL UNION SHOW AT STIRLING.

On Friday, July 2nd, the first show of this recently-formed association came off at Stirling. The *North British Agriculturist* gives the following notice of the Show :—

Shorthorns.—The exhibition of this valuable breed, consisting of about 40 animals, did not come up to expectation. The absence of animals from the herds at Keir and Buchanan House, rendered this interesting feature of a general agricultural exhibition less prominent and less instructive to the numerous body of agriculturists of the surrounding districts, almost the whole of whom regard the Ayrshire as entitled to be classed as the premier breed. The Keir herd, we learn, has most unfortunately been labouring under pleura, and although many of the animals were quite free from the disease, it was deemed proper not to exhibit. The smaller herd at Buchanan, which we lately inspected, and which is free from disease, could have furnished some competitors for the prizes. Why they were not shown at an exhibition of a Society under the direct patronage of the Duke of Montrose, we did not learn. In the class of aged bulls, the first prize animal, bred by Mr. Stirling of Keir, is very handsome and of great depth and substance. This bull may be expected to take a prominent position at one or more of the national shows. The third prize bull of the same class is also a fair specimen of the shorthorn. Why the second prize bull was placed, it is difficult to explain—perhaps the fact of being the prize bull at the recent show in Glasgow may partly account for it. In the class for cows, it is questionable if the best was placed first. The first prize yearling was not in our opinion a very superior animal —with a high rump the figure will become less square as she advances in years.

Ayrshire Stock:—The Ayrshire bulls were not generally good, with the exception of the first prize bull in the aged class. In the classes for cows several superior animals were shown and competed successfully. In the classes for heifers the competition was less spirited, but some good animals were exhibited.

The Highland cattle presented anything but favourable specimens of the breed. It may be presumed that the prizes were awarded on the ground that as it was the first exhibition it might appear invidious to withhold premiums from a breed.

The show of fat cattle was extensive for the season of the year, several fine specimens competing. The first prize crosses, shorthorn-Angus, bred by Hugh Watson, Esq., Keillor, and fed by J. Haig, Cameron House, reflected credit on breeder and feeder. Several other good specimens were shown, and in a state of obesity certainly not suitable for the shambles during the dog days.

The show of horses formed the principal feature of the exhibition. The brood mares were generally of large sizes, well spread, and indicating great power for harness. More than one mare showed injuries, to which, however, the judges appeared not to attach much importance. The entire colts were a fair collection. The first prize colt was a most perfect specimen of the Clydesdale. The fillies and gelding colts were also good. The premium offered for the best pair of horses brought forward several of the best animals in Glasgow. The size and general condition of these animals appeared to astonish most of the visitors. Such horses with the superb harness are a sight only to be seen in Glasgow.

The Leicester sheep were not well represented in the classes for tups, particularly the class for shearlings. The classes for ewes and gimmers were fair specimens of this valuable breed. The competition in the gimmer class was close, the whole shown being good sheep.

The blackfaced sheep sustained the rapidly improving character of this mountain breed. The competition in the class for tups was not very spirited; that for ewes was closer.

The competition in the premium for pigs was not close, but those obtaining prizes were superior. One boar and sow, with pigs of the Neapolitan breed, were shown, but were not favourable specimens. It is certainly questionable practice that in a district where the dairy forms a prominent part of the husbandry, that more attention is not bestowed on the breeding and feeding of pigs. In the dairy districts in England the proceeds of the piggery form a very important item.

LIST OF PRIZES.

JUDGES.

For Shorthorns, Crosses, and Fat or Feeding Stock, Leicester Sheep and Swine—Anthony Cruickshanks, Aberdeen; Robert Hardie, Harrietfield, Kelso; George Hope, Fenton Barns; assisted by Mr. Stevenson, of the *North British Agriculturist;* William Henderson, Craigarnhall, director.

For Ayrshire Cattle and Horses—William Forrest, of Treesbank, Allanton, by Hamilton; Hugh Kirkwood, Killermont: Mr. Murdoch, Hilton, Bishopbriggs; John S. Jack, Carrat, Ochtertyre; James Gow, Bankend; and William Macadam, Kepculloch, directors.

For West Highland Cattle and Blackfaced Sheep—John Macfarlane, Faslane; Peter Cowan, Townhead, Fintry; Donald M'Intyre, Tynablair Comrie; William Kay, Little Kerse, director.

For Implements—David Ballingall, Blairdrummond; William Forrester, Stewarthall; Ebenezer Alexander, Taylorton; Michael Carmichael, Raplech; James Turnbull, director.

The following is the result of the competition :—

CATTLE.

SHORTHORNS.

Two-year-old Bulls and upwards—First, John Stirling, of Kippendavie, "Militiaman," calved March, 1856; second, William Walker, yr. of Wholeflats, "Sir Colin Campbell," calved January 6, 1856.

One-year-old Bulls—First, C. J. Tenant, Ballikinrain, "General Havelock;" second, William Thomson, Bowhouse, Alloa.

Cow calved or in calf—First, William Thomson, Bowhouse, Alloa; second, Stewart Turnbull, Bonhill.

Two-year-old Queys—First and second, Stewart Turnbull, Bonhill.

One-year-old Quey—First, Stewart Turnbull, Bonhill, "Orphan," calved January 6, 1857; second, A. and A. Mitchell, Alloa, "Melrose," calved February 25, 1857.

AYRSHIRE BREED.

Bulls, three years old and upwards—First, William M'Adam, Kepculloch; second, James Forrester, Kepdarroch; third, Duncan Keir, Buchlyvie.

Two-year-old Bulls—First, James Frew, Ballmalloch; second and third, Thos. Stark, Keir Hill, Campsie.

One-year-old Bulls—First, Jas. Forrester, Kepdarroch;

second, Jas. Frew, Ballmalloch; third, George Pender, Dumbreck.

Best Cow in milk—First, Jas. Frew, Ballmalloch; second and third, Wm. Hay, Orchardton; fourth, George Pender, Dumbreck.

Best three-year-old Quey in milk—First and second, George Pender, Dumbreck; third, Duncan Keir, Buchlyvie.

Three Ayrshire Cows in milk—First, Wm. Hay, Orchardton; second, John Anderson, Smithston.

Cows in milk—First and second, Duncan Keir, Buchlyvie.

Two-year-old Queys not in calf or in milk—First and second, George Pender, Dumbreck, Kilsyth; third, James Jardine, Killewnan.

One-year-old Quey—First, James Graham, Myothill; second, George Pender, Dumbreck; third, James Aitken, Auchengillan.

FEEDING AND FAT STOCK, ANY BREED OR CROSS.

Pair fat Stots or Queys, any age—First, Thomas Stobie, of Ballochneck; second, William M'Leish, Alloa. Highly commended—Wm. Thomson, Bowhouse, Alloa.

Pair two-year-old Stots—First, Wm. M'Leish, Alloa; second, Wm. Thompson, Bowhouse, Alloa.

Pair two-year-old Queys—First and second, Wm. Thomson, Bowhouse.

Pair one-year-old Stots—First and second, Wm. Thomson, Bowhouse.

Pair one-year-old Queys—First, John Chrystal, Dasherhead; second, Wm. Thomson, Bowhouse.

Pair cross-bred Cows in milk, under four years old—James Cousin, Grassmainston.

WEST HIGHLAND BREED.

Bulls, any age—First and second, James Graham, Myothill.

Pair Cows—First and second, Hugh M'Pherson, Townfoot.

Pair Stots, any age—First, James M'Laren, Little Sauchie.

Extra Stock.—Commended—One fat Stot, belonging to Robert Lucas, Cornton.

HORSES.

Brood Mare with Foal at foot, or in Foal—First, James M'Artney Muckhart; second, W. A. M'Lachlan, of Auchentroig.

Yeald Mares—First, James Hay, Law Farm, Duntocher, four-year-old; second, David Riddell, Kilbowie.

Three-year-old Filly—First, David Riddell, Kilbowie; second, George Morton, Inchbelly.

Entire two year-old Colts.—First, Peter Crawford, Dumgoyach; second, James Turnbull, Castleton.

Two-year-old Fillies—First, James Adam, Muir Park; second, James Shaw, Mye Farm, Buchlyvie; third, John Watt, Cowie.

Two-year-old Geldings—First, Wm. M'Adam, Kepculloch; second, John Watt, Cowie.

One-year-old Fillies—First, Gavin Jack, Balcurroch; second, James M'Laren, Little Sauchie.

One-year-old Colts or Geldings—First, Thomas Stark Kier Hill, Campsie; second, William Stirling, Esq., of Keir, M.P.

Foals—James MacArtney, Muckhart.

Pair Mares or Geldings in harness—First, Dugald Napier, Glasgow; second, William Maclean, St. Rollox, Glasgow.

Pair Mares or Geldings without harness—Frst, James M'Artney, Muckhart; second, James Christie, Old Croft.

SHEEP—LEICESTER BREED.

Rams under four years—First, Wm. Thomson, Bowhouse; second, Wm. M'Leish, Alloa.

Rams one year old—First, A. & A. Mitchell, Alloa; second, Wm. Thomson, Bowhouse.

Three Ewes in milk—First, Wm. M'Leish, Alloa; second, Wm. Paterson, Kernbog, Kilsyth.

Three yearling Ewes.—First, Wm. Walker, yr. of Wholeflats; second, Andrew Mitchell, Alloa.

BLACKFACED BREED.

Rams under four years old—First and second, Alexander Rennie, Corrie.

Rams one year old—First, Alexander Rennie, Corrie; second, John M'Nab, Brackland.

Five Ewes in milk.—First, Alexander Rennie, Corrie; second, Andrew Wright, Slackristock, Carron Water.

Five yearling Ewes—First, J. M'Nab, Brackland; second, Alexander Rennie, Corrie.

SWINE.

Boars, any breed—First, Jas. Anderson, Cornton; second, John Lowis, of Plean.

Brood Swine—First, Wm. Thomson, Bowhouse; second, Thos. Allan, Westerwood.

Pair Pigs above three and under six months old—First, James Anderson, Cornton; second, John Nemmo, Gimel.

AGRICULTURAL IMPLEMENTS.

Reaping Machine—Peter Gardiner, Stirling.

Grubbers—First, Kemp, Murray, and Nicholson, Stirling; second, Anderson's triangular grubber.

Drill Grubber—First, Archibald France, Stirling; second, John Kay, Raploch; third, John Wallace, Ballagan Mill, Dumbartonshire.

Turnip-sowing Machine — First, George Anderson, Westwood; second, John Wallace, Ballagan.

Grass-sowing Machine—Kemp, Murray, and Nicholson.

Scotch Plough—George Rae, commended.

Horse-rake—Walter M'Cowan, Touch, commended.

Dairy Plates, &c.—John Christie, Stirling, commended.

Cran Sways, &c.—John Bryce, Stirling, commended.

Turnip-slicer.—J. Wingate, Alloa, commended.

Cooler— ditto ditto

Double-moulded Plough—Archibald France, commended.

Stable and Byre Fittings, and Sheep and Pig Troughs made of fire-clay—John Robson, Hurlford, Fire-clay Works, Kilmarnock.

Drain Tiles of the same material—John Robson, Hurlford Fire-clay Works, Kilmarnock, commended.

Four-wheeled Dog-cart—George Thomson, Stirling, commended.

SUFFOLK AGRICULTURAL ASSOCIATION.

MEETING AT BURY ST. EDMUNDS.

The experiment of extending the operations of the East Suffolk Society may be now said to have been first fairly tested by this meeting at Bury. The union, indeed, of the two divisions of the county was certainly inaugurated by the very successful day at Ipswich last year. But this had long been the head-quarters of the stronger side, and the point was rather as to how the Society would fare when it broke fresh ground? In simple truth, it remains in its leading features still essentially the East Suffolk. The great supporters of the show continue to come from that quarter, and, in fact, without their aid there would have been no show at all.

However, if the neighbourhood did not do its part by the entries, it compensated for this in the matter of attendance. More money was taken at the doors than on any previous occasion, and a lesson was thus given with equal profit to all.

Still the meeting was by no means up to what it has been; and will bear no comparison with its immediate predecessor. It did not even realize its own promise; for there were a number of animals nominated that were never sent. Now, nothing spoils the look of a show-ground more than such continual gaps, more especially when coming, as they did here in some classes, four or five together. The railway, we heard, had something to answer for, in refusing to afford the usual facilities of transit; but the Society must do something more to ensure stock that is entered being forwarded. At present there are no fines to meet such cases, but it is very evident there should be.

A Suffolk show, of course, mainly depends upon its rows of cart-horses. Both from far and near, people come to see these; and there were very many good ones to be found at Bury. There was, to begin with, Mr. Badham's famous "Emperor," who did so well at home last year, and who within this week or two carried off the All-England prize at Chelmsford, and another first prize at Norwich. To mark the strength of the entry at Bury, we may add that he was not even noticed here. For the best cart stallion, Mr. Barthropp took the first premium with "Hercules," and Mr. Stearn the second with "Boxer." Both of these are well-known winners; but Mr. Badham's horse has beaten them either in his turn. In fact, if we recollect aright, they were at the last Ipswich Meeting. "Hercules" is a very grand horse, of a harder colour than is just the fashion, and with capital flat legs and feet. Standing side by side with "Emperor," he did not, perhaps, strike one so much at the first look or so. The other is, indeed, a very showy, pretty horse, but with a weak place or two before, that would seem to have told more against him here than has been the case elsewhere. However, Mr. Badham has entered him at Chester, and may so correct what some good judges are inclined to consider a mistake, so far at least as his having neither premium nor commendation.

The aged stallions, running up to ten in the catalogue, but not all sent, were followed by a smaller, but very good class of three-year-olds, with three prizes and one commendation out of the seven competing. The judges were equally complimentary to the two-year-old colts, many of them wonderfully well grown for their age, but by no means all alike to be commended. It was thought, indeed, that those in authority got a little wrong with some of the younger animals, the fillies more particularly, and we never heard more discussion over the awards. At the same time it must be remembered that the Suffolks have some peculiar beauties that none but a Suffolk man can see. A stranger is consequently likely enough to reverse many a previous judgment, and this was often the case at Bury. Mr. Badham was particularly unfortunate, not only with his horse, but with two or three prize mares. His four-year-old commended filly had by far the neatest head we ever saw on one of the sort. It was really pretty, and she was altogether a nice mare, with less lumber and more "go" about her than is perhaps quite orthodox. Lord Stradbroke, we hear, took to her vastly, and we can readily back his Lordship's choice. As a lot, however, we rarely remember to have seen so many indifferent mares and fillies—at least in so comparatively short a show. It was clear, from the form of some of these, that the Suffolk may be even kept too much to himself; and Sir Edward Kerrison, at the dinner, talked some heresy about Clydesdale crosses, getting better feet, and so on, that may yet be worthy of attention. As a draught horse, the Suffolk has many things in his favour—his size, weight, and temper—but he is often anything but "good all over"; and there is no doubt that, with one or two very good strains of blood, there is much but middling. The Bury Show went far to prove this.

These meetings are altogether very "horsey" in their character. With some care and perseverance a good exhibition of riding and driving stock has now been established. But here, again, neither in numbers nor quality was the entry equal to that of last season. The prize list of this section extends over all sorts of horses—thorough-bred stallions, coach-horses, cobs, hunters, hacks, brood mares, foals, and ponies. Notwithstanding the vicinity to Newmarket, there were only two thorough-bred horses sent, of which an old favourite, "The Lion," was a long way the best. From the others we may select a very clever Norfolk cob of Mr. Gowing's; the two prize hacks, both by Robinson, and one, Captain Barlow's horse, a winner at Ipswich; some stylish good-looking foals by "Revenge," and the two prize ponies. Only a couple of weight-carriers faced the hurdles, which they accomplished in rather a slovenly style. But many a young horse would get nervous in such a crowd as thronged down to see this extraordinary feat—at best but a cocktail business.

Although the cart-horses are all supposed to be natives, it is not so with the cattle. The home breed have a series of premiums to themselves, "the other" sorts being confined almost entirely to shorthorns. But the Suffolk cow is not at best a show beast, and one or two of the most successful breeders of them did not enter here. There were fewer good-looking animals than usual amongst them. However, it is said they go more for use than appearance, and certainly quite hold their rank in their own county. Suffolk is one of the few districts in which the Shorthorn does not flourish. For years now have Messrs. Barthropp and Crisp, who went into the experiment with great spirit, had the breed very much to themselves. It will be found they took the majority of the prizes. Mr. Beckett's two-year-old bull is one of a lot purchased of Mr. Barthropp. But we should question whether the latter has many such neighbouring customers. Major Parker's white bull, the first prize amongst the Shorthorns, has no pedigree, but stands simply as a Durham. That of Mr. Barthropp, on the other hand, which was thought to be of a finer quality, is duly registered. He was the first prize bull at Norwich the other day. Mr. Crisp's picked cow, a fine roomy, broad-backed animal, lead off as good a class of cows as the Society has ever mustered. But the adjoining counties may have contributed something to this. Lady Pigott, for instance, sent one or two highly-bred beasts that may yet do better. Her Ladyship's turn is hardly yet come; but she appears to unite the great essentials of success—spirit and perseverance.

The show of sheep, which alone could have brought the entries up to their average strength, was numerically greater than those of past years. Mr. Sexton stood the most distinguished here with some Cotswolds, which he is endeavouring to introduce. Mr. Aylmer and another Mr. Sexton had some fairish Southdowns; and Cross-breds and Blackfaces—much the same thing—made up this department. The Black-faces—a mixture of the Southdown and Norfolk—may be considered as one of the features of West Suffolk. Mr. Crisp had it nearly all his own way with the pigs, being chiefly successful with the white, but showing a black boar—his best—that looks like an enlarged edition of the Essex.

The Suffolk Association does not deal in poultry, and the great manufacturers will not have any prizes for implements. We should be sorry to take this as a specimen of what an exhibition of machinery would become without competition, but it was a long way behind the other field in interest and attraction. As our opinion is well-known on this subject, we will avail ourselves of the report of a local journal. The *Bury Post* says: "With regard to the Implement Show, it was very good as a commencement, and as the exhibition was almost solely by exhibitors of the county. Mr. Boby, of this town, and Mr. Woods, of Stowmarket, exhibited a good collection; but those of our larger manufacturers were on so small a scale, and so much inferior to their variety as shown at the national meetings of the R.A.S.E., that one cannot avoid saying that the county did not do itself justice in this department. Suffolk could provide such a first-rate exhibition of implements, that one which would be considered good in almost any other county, can here only be looked upon as the introduction to better things, a commencement which ought to lead to something better in future years." Is not this rather suggestive of No prizes, no show? However, a medal or award is to be given next year for the best steam-cultivator, and this may lead on to something more. In addition to what was exhibited from the strength of the county, there was one of Burgess and Key's prize reapers, and an engine fitted with Boydell's wheels parading the ground—both, we believe, from the stock of Mr. Boby.

At the general meeting held before the dinner, the usual series of premiums were distributed to good labourers. Mr. Bond's suggestion, for having the stock in the day previous to the show, was again referred to the committee; and the offer of a prize for a steam plough agreed to. The dinner itself, in no way to be complained of, was served strictly on the principle that "Jupiter helps those who help themselves." There was in reality no attendance, and the comfort of the thing was of course quite gone. The toast list, extending to its customary length, was further improved upon by some very comical singing. *Two* Right Reverend declaimers made two too-long speeches; and so when it came to "the business of the meeting," the county gentleman who had to propose "The Judges" had to "cut it short," for he was going by the train; and "the successful exhibitor" first selected to speak to the toast had already gone. There was plenty of speaking certainly, but it reminded one strongly of the dandies at Melton, who never talked of hunting after dinner.

PRIZE LIST.

AGRICULTURAL HORSES AND COLTS (ALL SUFFOLKS.)

JUDGES: C. Bloomfield, of Hockwold.
T. Davy, of Garboldisham.
C. Randell, of Chadbury, Eversham.

Entire cart horses, first prize of £10, N. G. Barthropp, Cretingham, (Hercules).

To breeder of the best, £5, Mr. Green.

Second of £5, William Stearn, Elmsett, (Boxer).

Three-year-old entire colts, first prize of £6, Joseph Smith, Hasketon, (Raglan).

Second of £5, William Wilson, Baylham, (Salisbury Duke).

Third of £4, J. Ward, Wickhamskeith, (Briton).

Commended—Mr. T. Crisp's colt.

Two year old entire colts, first prize of 5*l*., C. Barnes, Kettleborough.

Second of 4*l*., T. Crisp, Butley Abbey.

Third of 3*l*., Charles Frost, Wherstead.

Commended—Messrs. J. Durant's and J. Everitt's colts.

One year old entire colts, foaled in 1857, first prize of 4*l*., R. H. Wrinch, Harkstead, (Comet).

Second of 3*l*., F. Laws, Foxhall, (Entire Duke).

Mares with foal at foot, first prize of 6*l*., Samuel Wolton, Kesgrave, (Bonny Suffolk).

Second of 4*l*., Samuel Plowman, Earl Stonham.

Commended—Mr. T. Crisp's mare.

Foals of 1858, first prize of 6*l*., R. Tricker, Hargrave.

Second of 4*l*., G. K. Cooper, Euston.

Gast mares, first prize of 6*l*., T. Crisp.

Second of 4*l*., J. Williams, Trimley, (Matchet).

Commended—Mr. G. D. Badham's mare.

Three year old fillies, first prize of 6*l*., S. Wolton, Kesgrave, (Empress).

Second of 4*l*., G. N. Bates, Blaxhall Hall.

Two-year-old fillies, first prize of 5*l*., Charles Frost.

Second of 3*l*., W. Stearn.

Commended—Mr. T. Crisp's filly.

One-year-old fillies, first prize of 4*l*., J. Rist, Tattingstone,

Second of 3*l*., Captain Barlow, Hasketon.

HORSES FOR RIDING AND COACHING PURPOSES.

JUDGES: G. Appleton, India House.
I. Mann, Rockland.
G. Parsons, Waldingfield.

Best entire thorough-bred horse, having served not less than 10 mares in the county, prize of £6, T. Waller, Sutton Hall (The Lion).

Best entire horse for coaching purposes, having served not less than 10 mares in the county, prize of £6, N. Welton, Bradfield (British Yeoman).

Best entire cob for riding purposes, having served not less than 10 mares in the county, prize of £5, D. Gowing, Mickfield, roan horse.

Best cob mare, with foal at foot, prize of £5, W. B. Chandler, Hacheston.

Best brood mare, with foal at foot, prize of £6, N. Welton.

Best foal for riding purposes, prize of £6, W. J. Burch, Campsey Ash, foal by Revenge.

Best foal for carriage purposes, prize of £5, N. Welton, foal by Revenge.

Best foal by "Revenge," a silver cup presented by Capt. Barlow, Hasketon, W. J. Burch.

Best three-year-old riding gelding or filly, prize of £6, Capt. Barlow.

Best three-year-old carriage gelding or filly, prize of £6, N. Welton.

Best two-year-old riding gelding or filly, prize of £5, W. J. Birch, filly by Castor.

Highly commended.—Mr. J. Mathew's filly.

Hackney mare or gelding under 7 years old, first prize of £5, Capt. Barlow, chesnut gelding by Robinson.

Second of £3, Wm. Boby, Willisham Hall, brown gelding by Robinson.

Best weight-carrying hunting mare or gelding, not over 6 years old, prize of £5, George Bond, Earl Soham.

Ponies not exceeding 13½ hands, and not under 12, first prize of £4, G. K. Cooper, Euston.

Second of £2, Capt. Barlow.

Highly commended.—Mr. R. Roper's pony.

Commended.—Mr. C. Sparrow's pony.

CATTLE, SHEEP, AND SWINE.

JUDGES: T. Hughes, Dunthorpe.
H. P. Hart, Bedingham, Lewes.
J. Moon, Hursthbourne, Hants.

Suffolk bulls not under two years old, first prize of £6, Jas. Read, Laxfield.

Second of £3, *no award.*

Suffolk bulls under two years old, first prize of £4, R. Stedman, Pakenham.

Second of £2, Samuel Wolton, Newbourne.

Bulls, of any breed, not Suffolk, and not under two years old, first prize of £6, Major Parker, Clopton Hall, Durham.

Second of £3, N. G. Barthropp, shorthorn (Regent).

Bulls of any breed, not Suffolk, under two years old, first prize of £4, T. Crisp, shorthorn.

Second of £2, W. Beckett, Helmingham, shorthorn (Jasper).

Suffolk cows, in milk or in calf, first prize of £5, R. Tricker, Hargrave, (Cherry).

Second of £3, Henry Cross Combs.

Three-year-old Suffolk heifers, in milk or in calf, first prize of £4, Jas. Read, Laxfield, (Damsel).

Second of £2, *no award.*

Two-year-old Suffolk heifer, in milk or in calf, first prize of £4, Jas. Read, (Cherry).

Second of £2, H. Wilson, Stowlangtoft Hall.

One-year-old Suffolk heifers, first prize of £2, R. Stedman.

Second of £1, Wm. Harvey, Timworth.

Cows of any breed, not Suffolk, in milk or in calf, first prize of £5, T. Crisp, shorthorn.

Second of £3, Rev. P. Sill, Wetheringsett, (Lily).

Highly commended—Mr. E. Witt's cow (Violet).

Commended—Mr. Barthropp's and Mr. G. K. Cooper's cows.

Three-year-old heifers of any breed, not Suffolk, first prize of £4, N. G. Barthropp, shorthorn (Music 2nd).

Second of £2, Rev. E. R. Benyon, Culford Hall, cross-bred.

Two-year-old heifers, of any breed, not Suffolk, first prize of £4, Major Parker, Durham.

Second of £2, N. G. Barthropp, shorthorn (Violet).

Highly commended—Mr. Sill's heifer.

One-year-old heifers, of any breed, not Suffolk, first prize of £2, G. Hare, Holbrook Cottage, shorthorn (Strawberry). [This heifer is objected to.]

Second of £1, Lady Pigott, Chippenham-park, shorthorn (Second Duchess of Gloucester).

Commended—Mr. B. Collins' heifer.

Pure Down tups of any age, first prize of £6, G. Sexton, Wherstead.

Second of £2, B. Aylmer, Fincham.

Shearling Down tups, first prize of £5, G. Sexton.

Second, of £2, B. Aylmer.

Tups of any age, of any pure breed, not Down, first prize of £6, G. M. Sexton, Earl's Hall, Cockfield (Cotswold).

Second of £2, G. M. Sexton (Cotswold).

Commended, Mr. T. Brown's tup.

Shearling tups of any pure breed, not Down, first prize of £6, G. M. Sexton (Cotswold).

Second of £2, T. Brown, Marham, Downham (long-woolled).

Pens of five shearling pure Down ewes, first prize of £5, B. Aylmer.

Second of £2, R. Stedman.

Pens of five shearling ewes, of any pure breed, not Down, first prize of £5, G. M. Sexton (Cotswold).

Second of £2, T. Brown (long-woolled).

Pens of five shearling black-faced ewes, first prize of £5, G. Dobito, Lidgate.

Second of £2, H. Wilson.

Pens of five shearling ewes, of any cross breed (*no entries*).

Pens of twenty lambs, of any pure or cross breed, first prize of £6, G. M. Sexton, Cockfield (Cotswold).

Second of £4, Col. H. B. Bence, Thornington Hall (half-bred Down and Cotswold).

Boars, first prize of £4, T. Crisp (black).

Second of £2, T. Crisp (white).

Sow and pigs, first prize of £3, T. Crisp (black).

Second of £2, G. M. Sexton (black).

Breeding sows, first prize of £2, T. Crisp (black).

Second of £1, T. Crisp (white).

Three young breeding sows, first prize of £2, H. Wilson (black).

Second of £1, G. M. Sexton (black).

Fat ox or heifer, under four years old, bred by a member, first prize of £4, Major Parker (Durham ox).

Second of £2, Major Parker (Durham heifer).

EXTRA STOCK.

Commended, Mr. Dobito's shearling black-faced tup, Mr. Green's black-faced tup, Mr. Brown's two Southdown ewes, and Mr. Lee's Shorthorn cow, with two calves.

THE DINNER

Took place in the lecture-room of the Athenæum, well laid out, and accommodating a party of from between three to four hundred. The Earl of Stradbroke was in the chair, supported by Lord Manners, Sir E. C. Kerrison, Bart., M.P., Sir Chas. Rowley, Bart., Sir Thos. Gage, Bart., Mr. P. Bennet, M.P., Col. Adair, Major Parker, Capt. Barlow, and Messrs. H. Wilson, H. J. Oakes, J. Parker, J. H. Heigham, J. G. Sheppard, A. Arcedeckne, J. Josselyn, J. H. P. Oakes, F. M. Wilson, W. Gurdon, G. D. Badham, N. G. Barthropp, G. Appleton, Crisp (3), Biddell (3), H. P. Hart, R. Garrett, P. Stedman, Sexton (2), the Rev. J. G. Cooke, and nearly all the leading agriculturists of the county. Neither the toasts nor the different speeches had much reference to the merits of the show, nor to practical agriculture. In returning thanks for his health having been given,

Lord STRADBROKE said: Permit me to express, in the first instance, the deep satisfaction which I feel at the successful result which has attended this the first union of the landlords and farmers in this division of the county, in the common cause of agriculture. It has long been my desire to see assembled together the large masses of the various classes of this county; first, because it gives importance to our meeting; next, because by increasing the amount of practical talent, we are enabled to spread information through the length and breadth of our land, and convey to our neighbourhoods whatever hints we may have had the good fortune to receive. This being the largest of all societies in this county, it gives a tone to agriculture, for which Suffolk has always been distinguished. In alluding to the different objects for which we have this day assembled, I will not state much of my own opinion as regards the stock which was exhibited, although I saw very much which must have attracted your admiration. I will leave that portion of the subject to the judges, who are better informed upon it. With regard to the machinery, which at all times is a most attractive and most interesting portion of any public exhibition, I am happy to say that those who live in this county continue to maintain the character for superiority which I trust will be exhibited at the Royal Society now about to take place. Agricultural Societies have been established in this country for a number of years, yet I believe the Suffolk Society is about the oldest of any. I will not go through the many subjects which, upon these annual occasions, have from time to time been brought before you. There is one subject, indeed, on which much has been written, on which much has been said, and which certainly does excite very great interest, not only in the minds of agriculturists, but every man who wishes well to his country: I allude more particularly to the cottage habitations of this county. It is a subject which of late years has interested many of you, and I am happy to say in some parts of this county great exertions have been made to improve those dwellings. We have found by giving three bedrooms to each cottage, we have been enabled to maintain respectability among the labourers themselves, and, I trust, improved morality amongst the female population. I venture to throw out this hint for the purpose of giving encouragement to the landlords of Suffolk, hoping they will pay especial attention to this subject; for we all know it is our duty to secure, in every possible way, the moral and social well-being and happiness of our people. It would not, I think, be difficult to prove that in those parishes and those districts where attention has been paid to this subject, there is a far less amount of serious crime than in the neglected parts of the country. Feeling and knowing as I do the popularity in which this Society is held in your estimation—I may say, indeed, in the estimation of every man in Suffolk—I have the greatest possible pleasure in giving as a toast "Prosperity to the Suffolk Agricultural Association." (Loud cheers.)

Very late in the evening, Mr. Arcedeckne gave "The Judges," and

Mr. APPLETON, in returning thanks, said this was the fourth occasion on which he had been there in the capacity of a judge. He congratulated the Society on the great improvement he had gradually seen from time to time. On this occasion, too, the judges had had their labours considerably diminished by the improved mode in which the animals had been classed.

Mr. HART also responded, and in reference to the present difficulty of deciding upon the merits of some descriptions of cattle, said he looked forward to the time when the Royal Agricultural Society would provide them with rules to guide them.

Sir THOMAS GAGE gave "The Successful Exhibitors," to which

Mr. G. MUMFORD SEXTON briefly replied.

In responding to "The Officers of the Society,"

Mr. BOND (the Secretary) said, that through the kindness of a great number of gentlemen who had assisted him most ably, his duties had been comparatively nothing. He added that the number who were admitted to the show that day was something short of 4,000, which showed, he thought, that they had had a very successful attendance.

THE SHEFFIELD POULTRY AND IMPLEMENT SHOW.

This show was held in the Norfolk Park, Sheffield. The show has been a splendid one; the visitors numerous; the weather, on the whole, propitious; and all the arrangements such as to give satisfaction.

THE POULTRY SHOW

was a very fine one; and though last year the exhibition was admirable, this was a great improvement upon it. As a summer show it was probably never surpassed. In every department there was a good display, the best birds being in each instance magnificent specimens of their kind.

The Spanish birds were good throughout. Mrs. J. C. Hall was very successful. She took an unmistakable first prize amongst the single cocks, and a third prize for her pen of three.

The Dorkings were characterized by the judges as an excellent collection of birds, and their appearance fully bore out the opinion. So equal was the merit of the birds that we understand the judges had considerable difficulty in awarding the prizes. We may add that of the "chickens" in this class some of them showed an extraordinary development, having finished laying their first batch of eggs!

There was a very fine show of game birds of all descriptions—decidedly better than last year. Captain Hornby, of Prescot, obtained two prizes for magnificent birds. The duck-wings may be mentioned as peculiarly fine.

Amongst the Cochin Chinas the old birds suffered under the disadvantage of being very much out of feather at this time of the year. The first prize was awarded to Mr. Fowler, of Aylesbury, for a remarkably fine pen of birds. The cinnamon and buff Cochin China Chickens were good—Mr. Fowler being again successful. The brown and partridge feathered and white Cochins (old birds) were worthy of great praise. There were also some exceedingly good black Cochins, but so much out of condition that they were passed over by the judges.

Of Brahma Pootras there was an excellent collection. Mr. Teebay, of Preston, was the most successful exhibitor, and showed some beautiful birds.

Hamburgs are a bird which always show well in this district, where they are bred much more largely than in the south. There was a capital show, and the golden-spangled were especially good.

There was a very good show of black Polands, the birds shown by Mr. Dixon, of Bradford, being particularly fine. The golden sort were not so well represented, but there was a good show of silver Poland.

Redcaps possess a peculiar interest for this locality. There was a very good collection of them, containing some admirable specimens. The first prize was awarded to Mr. John Battison, of Dee-street, Sheffield, for a capital bird.

There was a good show of birds in the "Class for any other distinct breed," the exhibitors being evidently attracted by the liberal offer of prizes. Amongst the most conspicuous we observed some first-rate Malays, some exceedingly good black Hamburgs, and some Sultan fowls. A prize was also awarded to the remarkable little white "Silkies," with black skin and bones; these were a curiosity, and the sight of them was greatly enjoyed by *connoisseurs;* but we are afraid they were *caviare* to the public. These birds are remarkably good on the table of the blind man, or of an epicure who is not particular about appearance; they are also good layers, and the best of all fowl as rearers. There were also some good pens of white Spanish, which were highly commended by the judges.

In bantams there was an unusually good show of both black and white, There were also some good specimens of the diminutive fowls known as "game bantams," which, like the larger fowls, are now bred of various classes.

There was a remarkably fine show of ducks and ducklings; the best being perhaps the Aylesbury.

There was an excellent show of geese, Mr. Fowler taking the first prize for a specimen of enormous size.

In pigeons the carriers were extremely good. Indeed the whole of this class was excellent; perhaps better than last year. There were some excellent trumpeters and pouters. Some runts exhibited were of very great size; and supposing they had been set aside for pie-making by some devoted epicure who was willing to pay ten guineas a pair, there would certainly have been no necessity for beefsteak. The largest pair weighed no less than 4½ lbs.

The show of rabbits was not so good as last year. One exhibited by Mr. G. W. Owen, of Rotherham, was very fine in regard to its weight, which was 14 lbs. A rabbit, shown by Mr. Gale, of Clarence-street, Sheffield, was also excellent for colour. We have seldom seen a rabbit in which it was so distinct. The animal which obtained the prize for length of ears, and which was exhibited by Mr. Taylor, of Hyston Green, was extremely well developed as regards the peculiarity for which it obtained the distinction. The length of ears was 20½ inches.

We may add that the judges expressed great satisfaction at the pens provided for the birds, which they considered admirably adapted for enabling them to inspect them in every direction.

THE IMPLEMENT SHOW

was supported by Messrs. Ransomes and Sims, of Ipswich; Messrs. Picksley, Sims, and Co., of Sleigh, Lancashire; Messrs. Davy Brothers, Park-Ironworks, Sheffield; Mr. George Mills, of the extensive leather works in Neepsend-lane, Sheffield; Mr. J. Wilkinson, of Grimesthorpe; Mr. S. Perkin, of Rockingham-lane; Mr. John Tasker, of Angel-street, Sheffield; Mr. Robert Awdas, of Sheffield; Mr. J. H. Winder, of Royds' Works, Sheffield; Mr. Thorley, of 77, Newgate-street, London; Mr. Winch, of South-street, Sheffield Moor; Mr. George Cooper, Electric Works, Wicker, Sheffield; Mr. Jackson, of the Market-place, Sheffield; Messrs. Spear and Jackson, of Ætna Works, Sheffield; Mr. James Banks, of Whiston; Mr. Binks, of Norfolk-row, Sheffield; Messrs. Fisher and Holmes, of Sheffield; Messrs. Wilkinson and Sons, Grimesthorpe; Mr. James Turner, of Sheffield; Mr. Fisher Godwin; Messrs. H. J. Morton, and Co., of Leeds; Mr. Edward Dodson, of Handsworth-hall; Messrs. Summerscales and Son, of Keighley; Mr. E. Archer, of Great Dover-street, Borough, London; Mr. Hartley, of Lille, France; Messrs. Pearson and Co., of Leeds; Messrs. Richmond and Chandler, of Manchester and Liverpool; Mr. Thomas Cuckson, of Worksop; Mr. Smelt, of Warren-street Works, Sheffield; Messrs. Briggs and Starkey, of Keighley; Messrs. Ruston, Proctor, and Co., of Lincoln; Mr. Peter Gabbitas, of Worksop.

All these firms exhibited implements and inventions for which they are already famous, but that it would be impossible to even enumerate here.—Abridged from the *Sheffield Times*.

THE STRIPE SYSTEM OF SOWING CORN.

On poor mean foul land you must sow thickly, not only in the rows, but with the rows close together, in order to prevent wheat or any other cereal being choked, smothered, and overmastered by weeds. But on good ground, with early sowing, it is by far the best plan to sow thinly; that is, not with an attenuated scattering of seed along each row, but with wide intervals between rows well stocked with plants. We have some land on which three bushels an acre of wheat, got-in early too, is barely enough seed to secure a full crop of stems in spring; and soil of a better quality, richly farmed for years, produces such a mass of flag and straw, that whole fields lodge every harvest, and give us a heavy produce of lean flinty grain. Topping wheat with the scythe or hook is an operation unknown on the former, but tediously pursued every year on the latter soil; but whether this chopping off the upper flag really lightens the crop, seeing how rapidly the stems shoot up after the process, may be a question. Go into a heavy, rank, thick-sown piece of wheat, buried up to your arm-pits in the luxuriant jungle of stalks and drooping flags, and bending aside and opening them, inspect the lower portions of the stems: they are blanched and weak, and you know they will be unable to bear up bulky ears against the torrents of July rain. Long before the crop turns yellow for the sickle, the mass of it will be prostrate, the heaviest places almost rotting, the ripening of the laid ears made late and imperfect; bindweed will cling about it, and defying any attempt of the reaping-machine, the thorough-grown and spoiled crop will cost dear in the harvesting. But our twelve-inch rows, drilled with four pecks an acre, are very different; they are healthy to the ground, and even should the weight of their heads bear them down, there is more room for exposure of the flowering and fruiting ears to air and sunshine. Our wheat on the stripe system, in triple rows ten inches apart, with forty-inch intervals between, is still more green and stalwart, and the ears whether fully "out" or peeping from the opening spindles are long, and sure to be amazingly heavy.

Our experience agrees with the carefully-noted experiments of Messrs. Hardy and Son, of Maldon, and we believe there is a general disposition in farm practice to widen the intervals between rows of cereal or other grain crops; of course carefully avoiding extremes at first, and bearing in mind that thin-seeding must be early, and on land not smothered with poppies and charlock, or subject to burning up by the sun.

The Lois-Weedon wheat crops are well known; but we would now call attention to the beans there cultivated at extravagantly wide intervals, with astonishing success. Grown in single rows no less than five feet apart, and with a thin seeding, Mr. Smith's winter beans branch so thickly and widely as to meet across the intervals, and in ordinarily good seasons are podded from top to bottom. It almost transcends belief that, in spite of such wide spaces of ground left unoccupied between the rows, the produce one year was seven quarters per acre. But having witnessed the rows in June nearly touching across the intervals, and counted thirty-five to fifty-five pods on single stalks, we can readily acquiesce in the accuracy of the measure stated. Last year the yield was fifty and-a-half bushels, and the beans were a first-rate sample. In 1856 the produce was thirty-eight bushels per acre. But the intervals are not wasted, for the beans ripen in time to admit an interlining root-crop to perfect its bulbs; and from the same acre of land which produced the fifty and-a-half bushels of beans were taken eight or nine tons of red carrots; and the bean crop of 1856 yielding thirty-eight bushels gave also a fine crop of about fourteen tons of carrots.

And in the same way with other crops. We find in the little volume, "Lois-Weedon Husbandry," published in 1856, that both red and orange globe mangold at sixty inches apart yielded twenty-four tons from a single acre. It may be asked, "Had they been grown in the usual manner, half that distance apart—namely, thirty inches—why would not the produce have been raised to forty-eight tons, and so doubled?" Mr. Smith replies, "For this plain reason: To grow fine crops of mangold and turnips in the ordinary method, it is considered by many indispensable to thin them out from twelve inches at the lowest to fourteen inches or more from plant to plant. And even this, at thirty inches from row to row, it will be found, on close inspection—so greedy are the rootlets of the mangold, so zealous in their office of feeders to fatten the bulb—that, in their search for food, *they cover the narrow two feet six-inch intervals, as with a network of spider's webs*, while the gross leaves shut out the healthy action of the atmosphere; and both these circumstances together prevent the plant from attaining the fullest development of which it is capable. Let the narrow-leaved carrot, however, which feeds principally from the points of its long tap-root, and little from its almost invisible lateral filaments, take the place of every alternate row of mangold, and the mangold roots are almost wholly unobstructed, and to the carrot therefore the preceding remarks are inapplicable." Accordingly, a crop of carrots is taken between the mangold rows; and thus from the same acre of land is obtained this quantity of roots: Red mangold, 24 tons; carrots, 16 tons—total produce, 40 tons. In single rows five feet apart, the general average of swedes was 20 tons, ranging one season as high as 27 tons per acre. Drum-head cabbages, in rows five feet apart and two feet six inches from plant to plant, give a noble crop, with its leaves generally meeting and occasionally intermingling across the five-feet intervals, the plants in many cases measuring six feet in diameter, a great portion of them weighing 30 lbs., very many 40 lbs. and upwards, and one of them 48 lbs. Counting the number of plants, and striking the average as near as may be, this cabbage crop amounts to about 33 tons per acre.

We are not now insisting upon the best methods of growing these crops, nor do we mean to maintain that sixty inches is the best distance to sow swedes. The point we are enforcing is, that great crops can be raised with very wide drilling, provided the cultivation is of the right kind; and this being once recognized as an indisputable truth, the farmer will soon find where and under what circumstances he may adopt the practice with advantage.

Of course, the above Lois-Weedon crops were grown by deep tillage and high manuring. For the cabbages, the ground was trenched, and a heavy dressing of farm-yard manure buried at the depth of sixteen or eighteen inches, and the surface sprinkled with ashes of weeds and burnt clay, and forked in. For the mangolds, the land was tilled before winter, farm-yard manure trenched-in a like depth, with a stirred crumbly bottom of three or four inches more, and a compost of two bushels of lime to one of salt, with fine mould *ad libitum*, was stirred lightly in with the fork just before the seed was put in. Mr. Smith buries the manure at the great depth mentioned, by going one turn with a plough, and then trench-ploughing the same furrow with another turn, leaving a broad bottom fourteen or sixteen inches deep. Then the subsoil plough follows, going seven or eight inches deep, making the whole depth broken up nineteen or twenty inches. Common subsoiling on tenacious clay has but little effect, and that little soon ceases—the soil quickly coming together again, and closing up as if the iron had never touched it. But in this case the furrows, "opened," as we call it, are left open, and the subsoil exposed; and after the frosts have crumbled it, the scarifier stirs all together, as a preparation for receiving the manure.

The success of wheat both on light and heavy land, grown on the stripe system, at an *average* width of twenty inches between row and row, we need not again allude to; only repeating that on Mr. Smith's heavy land the twelfth successive crop, without manuring of any kind during that time, produced last year six quarters per acre with a great yield of straw.

THE AGRICULTURE OF NORTH WALES.

The "district" of the Royal Agricultural Society's Chester Meeting comprises more of interest and diverse peculiarities than any other which has been yet visited. It is a county that can teach us better than any other about grazing and dairying—it is, in fact, the true *cheese-shire*—and in Staffordshire and Salop we find examples of first-class arable farming, though the population is too much engaged with pottery, coal, and iron works and manufactures to be specially agricultural. In the western portion of the district, including the six counties of North Wales, exists a husbandry needing enlightenment and reformation, and the infusion of new ideas, which are likely to flow from the coming exhibition.

The city of Chester is well situated for receiving the visits of an inquiring rural population, and for spreading among them the new facts and notions resulting from the Show, besides being convenient and close at hand for thousands of curious sight-seers from the centres of mechanical industry. Within about a thirty-mile radius are—Birkenhead and Liverpool, Southport, Ormskirk, Chorley, Wigan, Bolton-le-Moor, Salford and Manchester, Stockport, Macclesfield, Tarporley, Congleton, Newcastle-under-Lyne, Hanley and Stoke-upon-Trent, Market Drayton, Wem, Wrexham, Oswestry, Llanfyllin, Llangollen, Corwen, Bala, Ruthin, Denbigh, Abergele, Rhyl, Rhyddlan, St. Asaph, Holywell, Flint, and Mold. What a crowd of images, of factories, docks, collieries, lead mines, iron works, potteries, salt mines, dairies, Welsh flannels, rise before us at the mention of these towns! What a view of thronging inhabitants opens before the mind when we remember how, beyond this limit, the country is intersected in every direction and dinned with the traffic of railways! Six railroads meet at Chester: one from Birkenhead, another from Warrington, bringing visitors from the multitudinous network of Lancashire and Yorkshire lines, converging at Liverpool and Manchester; one from Crewe, where meet two Cheshire branches, the Great North Western, the line from the Potteries, and the other branches and junctions, uniting Macclesfield, Leek, Uttoxeter, Derby, Tamworth, Lichfield, Birmingham, and Wolverhampton; another railroad bisecting Shropshire from Ludlow, by Church Stretton and Shrewsbury, branching also to Wellington and Shiffnal; one from the town of Mold; and, lastly, the Welsh-coast line from Holyhead (the landing-place of the Irish visitors), collecting passengers for the Show at Carnarvon, Bangor, and Conway.

With the general features and agriculture of those counties which have been the subjects of prize reports in the Society's Journal, the English farmer ought to be tolerably familiar; but as, unfortunately, Stafford and Salop yet remain to be so described, a few details relating to them may be of interest.

Staffordshire is more a mining and manufacturing than an agricultural county. The northern part is a moorland tract, subdivided by peaty valleys; the hills, rising to an elevation of a thousand feet above the sea, sometimes consisting of vast heaps of gravel, sometimes of huge cliffs, having immense masses of rock scattered round their bases; and, excepting some beautiful vales and fine pastures (as along the rivers Dove and Churnet), the district is bleak and sterile. The southern angle of the county is a tract of coal-mines, furnaces, and foundries; and the Pottery district, extending between Newcastle-under-Lyne and Norton-on-the-Moors, is a succession of towns and villages busied in shaping and baking "cups and saucers" out of the fire-clay and coal abounding there, combined with the finer clays from Purbeck in Dorsetshire, soapstone from Cornwall, and flints from Gravesend, from Wales, and Ireland. In the middle portions of the county are fine estates—a pleasant country of woods and gentlemen's seats, rich pastures, and irrigated meadows bordering the beautiful Trent, Dove, and Stour. The banks of the upper part of the Dove are extraordinarily fertile, mainly arising from the spring floods; whence the proverb thus runs —"In April, Dove's flood is worth a king's good." This stream fertilizes like another Nile; but sudden rain or melting snow on the moorland or Peak hills is sufficient to inundate large breadths of land, though, from the declivity of the valley, the largest floods do not last long, giving the grazier some trouble to watch against his stock being drowned. The soil of the agricultural part of Staffordshire varies from sandy loams and gravels—good for turnip husbandry—to stronger land, and in some instances to heavy clay. There are many large properties; and also many farmers, we are glad to say, owning their respective farms. Old marl-pits abound; but this mineral application has now greatly grown into disuse, and guano, superphosphate, &c., employed for the root-crop. One of the first examples of agricultural improvement, the drainage and reclamation of an estate, the breeding of superior sheep and cattle, the erection of fine farm buildings, and the successful application of machinery—both in the employment of the drainage-water of the estate as a motive-power for all the thrashing and mill-work of the farmery, and in the working of steam-cultivators on the land—may be seen at Lord Hatherton's, at Teddesley, near Penbridge. Near this, and to the west of Rugeley, stretches the notorious Cannock-Chase—fourteen thousand acres of waste land, mainly improvable, but at present in a state of nature. Visitors of a curious turn may find in this county some remains of the old long-horned breed which one sees at the Birmingham Cattle-show, but which are being improved and altered in character by the all-absorbing short-horns. To show that this county manifested an extraordinary precocity in the matter at least of ploughs, if not of field implements generally (witness the extended use of what are known as "twins," or in the eastern counties as the "Staffordshire harrow"), we give an extract from a report of the farming in 1794: "Double, or two-furrow ploughs are much used, and answer well on light soils, where four horses will plough two acres or more per day. These ploughs are made on a good construction, and require no holder. The *single wheel plough* is a very good tool, *requiring no person to hold or touch it*, except when it is turning at the end of the furrow. They require but one attendant, for which a boy of fourteen or fifteen years of age is sufficient. And here I cannot but remark the superiority of a plough that requires no holder, but a person only to drive the horses, and turn it out and in at the end of the furrow, to one which requires to be held, and the horses of which are guided by reins. These ploughs have been much improved by the addition of *an iron earth-board firmly screwed to the coulter*, called here a flag, for ploughing turf, which takes off the turf, and turns it into the furrow, where the plough immediately covers it with earth. By this management, a turf at one ploughing has the appearance of a fallow, and harrows nearly as well."

Shropshire can only be considered as half-agricultural, for there are very extensive moorlands or hills, as the Bettws ridge on the confines of Radnorshire, the Stiperstones, the Long-mynd, Wenlock Edge, the Caradoc, and the Clee Hills. In the south-west are wild districts of barren hills, abounding with lead mines; and the east of the county, especially at Coalbrookdale, is a region of furnaces and blazing iron-works, with an aspect *Vulcanic* and grimy by day, and glowing *volcanic* in the hours of darkness. There are also both potteries and manufactories—china-ware at Coalport-on-the-Severn; pipes, rails, &c., at Broseley; carpets at Bridgnorth; gloves at Ludlow; and flannels at Shrewsbury. A comparatively level plain occupies the central portion of the county, from the confines of Cheshire down to Church Stretton, and from Oswestry to Coalbrookdale—the famous Wrekin rising out of this plain toward its eastern side. The noble river Severn flows through this champaign, bisecting the county. The soil of the eastern side of Shropshire is mostly a sandy loam, farmed on the four-course system, the occupier's main dependence being on his sheep and his barley; breeding of horned cattle, and dairying are carried on to some extent, particularly in the south and west: hops are produced on the borders of Herefordshire. There are some large estates and tolerably extensive holdings on the eastern side of the county, where the husbandry is well carried on; but on the borders of Wales the farms are very small, many not exceeding twenty acres. The district of Clun Forest, in the south-west part of the county, is divided into small freehold properties, varying in value from £5 to £150 a-year, the majority being of the smaller class. Their occupiers, who in most cases are also the owners, employ few labourers, the principal part of the work on their farms being executed by themselves and their families. They are very industrious, working along with their servants, while their wives bake, brew, &c. One point that may very well be investigated by the visitor to Shropshire is, the enormous quantity of beer reported to be swallowed by farm-labourers, not only in harvest or hay time, but all through the year.

In June, 1776, Young found "a fine sandy soil for two or three miles before Shiffnal. Course: 1st, turnips, limed for, but not always hoed; 2nd, barley, five or six quarters; 3rd, clover, mown and fed; 4th, wheat, dunged for, yielding twenty to thirty bushels. Some rye-grass. Rent, 15 shillings an acre." So that the four-course system was very prevalent, and not considered at all an innovation, long before Mr. Coke introduced it into Norfolk. "I found double-ploughs here, as also near Birmingham; they are very common, and reckoned a great saving; the price £5 5s. complete." "At Benthal," he says, "turnips are coming in among them; they begin to hoe, but only a little. Soot they use a little for wheat-crops in April, at 6d. a-bushel. In weaning calves they have several methods to make a little milk go a long way; for instance, to a pail of water they put a pint of linseed, which they boil, so that when cold it shall be a jelly; they then warm it for use, and mix it with skim-milk half-and-half. They also mix milk and water and pea-flour for the same purpose. Cutting straw into chaff is much practised." Near Shrewsbury, on a strong loam, "they plough with horses four or five at length, and do an acre a day; keep eight horses to 100 acres of tillage. Break stubbles after wheat-sowing. Swing-ploughs used, and the coulters fixed to the shares. Irrigation practised. Many copses in the landlord's lands; the young wood cut and sold to the collieries. Lime spread on peas when three or four inches high, to keep insects from them." At Orton he found a farmyard managed on the best system he had anywhere seen. "In autumn the farmer carts marl in, and spreads it; upon this he confines his cattle, giving them their fodder on it; and he has a well in the lowest part for pumping up the drainings and scattering them by troughs over the whole body of the compost." Have any Shropshire farmers cause to be ashamed when they read this record of sixty-two years since?

Of its breed of sheep, a large and most valuable variety of Downs, this county may justly be proud, and we have no doubt that visitors will profit by this opportunity of acquainting themselves with the peculiar merits and properties of these rapidly improving animals.

North Wales, embracing the counties of Montgomery, Merioneth, Flint, Denbigh, Carnarvon, and the Isle of Anglesea, is more renowned for its magnificent mountain scenery, its slate, copper, lead, iron, coal, and manganese works, its flannel, cotton, and other manufactures, than for its farming. Indeed, the arable land is less than one-fifth of the whole acreage, and one-fourth is in wood and waste. The largest extent of any one kind of soil is on the coal-measures, or comparatively level tract, stretching south-west of Chester; beyond this are the limestone hills of Flintshire, and the Silurian mountains of Denbigh; then the vale of Clwyd lying on new red sand-stone, and proverbial for its fertility. Most of Carnarvonshire is a district of mountains, comprising the mighty Snowdon, and other lofty peaks; abounding in precipices, lakes, and passes; sheep-walks, and bogs on the elevated parts of the region, and miniature valleys, with good soil, bordering the streams—as near Carnarvon, Bangor, in Conway vale, Festiniog, and other places; and on the shores of Cardigan Bay are sandy marshes, embanked from the sea. In Anglesea are some marshy tracts, capable of great improvement. Remote from good roads and markets, Welsh husbandry is in a backward condition; such, in fact, as that of some of our best-managed counties was fifty years ago; but railways and other stirring influences are awakening the spirit of progress. But the improvements must necessarily be of a rudimentary character, in spots where the growth of grain is impossible, and cattle have to be sent off to the eastern farms on the approach of the Alpine winter. The history of the agriculture is, first, solely grazing; next, a little tillage is combined with it; and then manures are economized and applied to the cereal crops and meadows; subsequent to which an advanced step is taken by the introduction of green crops and alternate husbandry. But turnips form, at present, a minor part of the usual culture; and owing mainly to the bad practice of taking two, three, or four corn crops in succession, and breaking up the lea again within two, three, or four years of so exhausting a course, the deficient average produce does not supply North Wales with enough corn for its own consumption, large quantities being imported from England and Ireland, to feed only a scanty population. Sheep-farming upon the mountains is the principal business of the occupiers; and of the qualities of the native sheep we shall have something to add in our report of the show.

Cheshire is a comparatively level county; about one quarter, in the east and north-east, rising into lofty hills. Rich red loams and strong tenacious soils prevail; and the pastures, sheltered by a profusion of timber, and kept moist by the great rainfall, are some of the most luxuriant grazing-lands in England. Those of us proposing to devote a day or two to explorations in Cheshire, may bear in mind the famous beds of rock-salt, and the brine-springs near Northwich, Middlewich, etc.; the cotton and silk factories of Macclesfield, Stockport, Congleton: but cheese, being the principal product, will be the main subject of inquiry to the agriculturist; and the boning of grass-lands may also be investigated with benefit at the same opportunity. Two-thirds, or more generally three-fourths, of a dairy-farm are in permanent pasture, the remainder in tillage; the farmers being commonly bound to lay the whole of their manure, not on the arable, but on the grass, purchasing what may be necessary for the other fields. And the cheese—that is, the chief product of the farm—goes to pay the rent. Tile-drainage has been done to a very considerable extent; but the chief improvement consists in the application of bone-manure. In the milk of each cow, in its urine, and in the bones of each calf reared and sold off, a farm parts with as much earthy phosphate as is contained in half a hundredweight of bone-dust. Hence the advantage found in returning this mineral matter by boning. It is considered that draining and boning four acres of land yield an additional produce equivalent to the keep of one cow; and tenants readily pay 7 per cent. to their landlords for expenditure in bone-manure. The quantity applied varies from one to two tons an acre, ground to coarse powder, and put on in the autumn. Nutritious grasses quickly take the place of useless or injurious varieties; and the land never afterwards reverts to its sour condition. Why is it that the same practice has failed in some other counties?

THE PRESERVATION OF FOOD.

In preceding articles in this Journal we gave abstracts of the specifications of patent inventions relating to "Drain-tiles and Pipes" and "Manures." We now propose to follow these up by similar abstracts of the specifications of inventions relating to "The Preservation of Food." And we do this all the more readily, as our article may form a suggestive sequel to the paper presented some short time since, entitled the "Preservation of Grain for Food." For the matter of the present paper we are indebted to one of the publications of the Commissioners of Patents, corresponding in size and price (6d.) to the Abridgments of Specifications relating to "Drain-tiles and Pipes" and "Manures," as above alluded to. We shall confine our remarks chiefly to those patents having special reference to *agricultural produce*.

The first patent recorded bears a date as early as October 7th, 1691; it was granted to Thomas Porter and James White, for preserving "by liquors or otherwise all sorts of flesh, fowle, and fish, and many other things, either in pieces or whole bodyes, at a cheaper rate, for many years, in all climates, without changing the nature, quality, taste, smell, or colour thereof, as good, palatable, and wholesome, to be eaten and made use of for any intent and purpose whatever, as when first killed or put into such liquor." What these liquors or "otherwise" were, which were to effect such a preservative process, does not appear, as no specification was enrolled.

Vegetables were proposed to be preserved by drying and preparing, so as to keep a twelvemonth or longer without loss of flavour, under the patent dated Dec. 30th, 1780, to John Graefer. The plants and vegetables to be preserved were boiled for a "minute or thereabouts" in salt and water, taken out and hung separately on lines or small hooks, in an atmosphere impregnated "with heat or fumigation by means of a bazaglo or any other stove, or steam issuing through funnels, or by the natural heat of the sun." To this atmosphere the plants were to be subjected till perfectly dry. To fit them for exportation, they were to be removed to a damp room, where they were allowed—oddly enough, after the care taken to dry them—to imbibe a sufficient quantity of moisture to allow of their being packed without crumbling.

Eggs were proposed to be preserved "for the space of two years at the least," by immersing them in a mixture of such specific gravity as to allow of their floating in it; this mixture to be composed of the following substances in certain proportions: Quicklime, salt, cream of tartar, with water. The date of the patent is Feb. 8, 1791; the name of the patentee, William Sayne.

February 19th, 1793, a patent was granted to John Donaldson, for preserving animal and vegetable substances, by combining certain principles therein contained; "proportioning the farinaceous vegetable principle with the coagulative or mucilaginous one." Watery vegetables required, according to the patentee, a greater quantity of farina or mucilage. Carrots or turnips required a preserving matter compounded of barley or wheat meal with a solution of common gum or vegetable mucilage. The substances, either raw or otherwise, were afterwards to be kiln-dried and packed in boxes.

In the patent granted to Augustus de Heine, Feb. 26th, 1810, the articles to be preserved were proposed to be put into vessels of glass, iron, or other metal; in the lids or covers of which were protuberances wherein valves were fitted, which suffered the air in the vessel to escape, but prevented it from entering. From the interior of these vessels the air was exhausted by a peculiar machine described.

June 20th, 1820, a patent was granted to John Valance, for a method of packing or casking hops, so as to be out of the reach of atmospheric influences, and which would enable them (as anticipated by the patentee) to be kept "as long as is pleased—perhaps half a century even"—without being damaged. The hops packed in metallic or wooden cases, by means of a strong hydraulic pressure, or otherwise; the joints, or crevices, were to be luted with pitch and rosin," softened and toughened in texture by the addition of a little tallow.

Potatoes were proposed to be preserved by Thomas Alexander Roberts (patent dated April 23rd, 1825), by taking them when thoroughly ripe, and before they have grown in the spring, and cutting out or otherwise destroying the eyes or germs." Carrots, turnips, and other vegetables were to have the germinating parts cut out.

In the patent granted to Robert Vazel, July 12, 1827, a claim is made which has reference to "preventing the injury which corn and pulse too frequently sustain by rain and wind during harvest," this being effected by placing round a stake driven into the ground eight sheaves of the grain, and placing a hood sheaf spread round the upper part of the upright sheaves. This arrangement is called the "corn-preserver." There are other claims which do not come within the compass of the present paper.

Donald Currie patented, January 31, 1828, a method of preserving grain, and other vegetable and animal substances, by inclosing them in air-tight vessels, vaults, and other proper receptacles. From these the atmospheric air was to be extracted as much as possible, and to be replaced by carbonic-acid gas, obtained by any of many well-known methods, as by combustion of charcoal and fermentation.

Potatoes, and other vegetable substances, were proposed to be preserved by a process patented by Edward Downes, Aug. 8, 1840. The potatoes are first to be boiled, or steamed, till the skins just show symptoms of cracking; they are then put into a cylinder, the bottom of which is pierced with small holes, and in which a piston is pressed down, forcing the potatoes through the holes in the form of small threads or fibres, which retain the form. The potato fibres are then dried in water-baths.

The object of the patent granted to Charles Grellet (Nov. 25, 1840) is also the preparation of potatoes into various articles of food, in the shape of potato flour and potato meal. Various machines and apparatus for drying are described in the specification.

To Robert Davison and William Symington a patent was granted, March 28, 1844, for a method or methods of drying, seasoning, and hardening wood and other articles, parts of which are applicable to the desiccation of vegetable substances generally. For this purpose currents of air heated to definite temperatures in a series of pipes placed over a furnace are propelled with high velocity, by means of revolving fans, through and among the mass of wheat, coffee, starch, or other substances to be dried.

In the patent granted to William Truman Hall (Jan. 28, 1845), the animal and vegetable substances to be dried are hung up, or thinly placed on shelves in a drying chamber, through which air is propelled by means "of a fan, a piston, or a cylinder." The air, before entering the chamber, is proposed to be passed through a vessel containing fragments of chloride of calcium; the object of this being to deprive the air of moisture. To keep animal and vegetable substances "dry" only, the patentee proposes to place them in vessels "generally made of tin," containing chloride of calcium. When the substances to be kept dry are very moist and thin, "it is advantageous to make a partial vacuum in the cases or vessels," and to increase considerably the quantity of chloride of calcium.

Samuel Carson, in his patent (dated Nov. 4, 1845) aims at preserving eggs by puncturing them at one end with a pin, placing them in cases with the punctured end upwards. The lids of the cases are then soldered on, and the air exhausted from a tube in the lid, which has two openings, one of which leads into a steam boiler; the steam from this enters the case, and the water of condensation islet off through a hole in the bottom of the case.

Thomas Grimwade Shipp, in his patent (dated May 14th, 1847), proposes to preserve milk for any length of time, by the simple admixture of pure water. To the mixture saltpetre is added; the whole being exposed to heat in vacuo, so as to evaporate and extract the aqueous particles. The fluid is then to be enclosed in vessels from which the air has been previously exhausted; and preserved from contact with the atmosphere.

The object of the next patent (patentee, Francis Bernhard Bekeart, date May 29th, 1847) is to increase the quantity of cream from milk, by adding to it, in the proportion of one table-spoonful to two quarts of milk, a liquid prepared by dissolving in one quart of water one ounce of carbonate of soda, to which is added one teaspoonful of a solution of turmeric or curcuma, and three drops of marigold water. Other alkaline substance may be used, and the patentee states that the soda solution will be efficacious without the other ingredients above mentioned. Milk is proposed to be preserved under the patent by adding to one quart of the milk one spoonful of the solution of soda. The milk thus treated is put into a bottle which it should exactly fill, the cork to be secured by wire or string to prevent it flying out, The bottles thus filled are to be placed in a cold bath, the water of which is to be raised to the boiling point, and allowed to cool.

Milk is also proposed to be preserved by the patent process of Jules Jean Baptiste Martin de Lignac (date of patent Oct. 7th, 1847), which consists in first straining the milk, evaporating it in flat shallow pans, placed in a water bath heated to 186 deg. Fah. till it is reduced to one-sixth of its original bulk. It is then filled into tin vessels, which are hermetically sealed after standing twenty-four hours. When sealed, the tins are put into water at a temperature of 210 deg. Fah., and allowed to remain for ten minutes.

Robert Davison and William Symington propose, in their second patent (dated Nov. 6th, 1847), to dry pulse or vegetables by means of currents of heated air—produced as stated in their first patent—passing through the substances, which are placed in the heating-chamber upon trays with hair-cloth or lattice-work bottoms.

The patent of date May 26th, 1848, granted to Felix Hyacinthe Folliett Louis, proposes to preserve milk by converting it into solid cakes or masses, soluble in warm water, "and capable of preserving for a long time their original freshness and sweetness." These cakes are made by mixing with the milk well clarified raw sugar, agitating it, and evaporating it in certain apparatus, consisting of shallow pans with steam jackets. Where the milk does not exceed the depth of one-tenth of an inch in the pan, the evaporation may be effected by allowing the dishes to remain in the open air.

To John Bethell a patent was granted (dated August 21st, 1848), in which he claims a method of preserving corn and all sorts of grain by the use of heated steam. This is obtained by "simply passing steam, generated in the usual way, through a series of heated or red-hot pipes; or the grain may be made to pass through a revolving cylinder of perforated metal or wire-gauze, placed in a close oven or chamber, heated in any way." A machine is also described for drying grain, which consists of a chamber, in which a series of endless cloths or aprons traverse upon rollers. The grain is passed to the first cloth at one end of the box, passed by the gradual motion to the opposite end of the box, where it falls into the second cloth, placed below the first, and moved on to the opposite end of the box, where it is in like manner delivered to the third cloth, and so on to the end of the series. The grain, in its passage thus through the chamber, is subjected to the action of currents of heated steam. In the same patent, Mr. Bethell proposes to preserve milk by first scalding it, and then impregnating it with carbonic-acid gas in a soda-water machine, and bottling it in the usual way. The milk, well scalded, may be put into strong tin vessels, into which the carbonic-acid gas may be forced.

To James Murdoch, Jan. 30, 1851, a patent was granted for preserving animal and vegetable substances, by subjecting them in a close chamber to the action of currents of dry air.

Provisional protection, under the new act of 1852, was granted to Louis Constant Alexandre Vittrant, for a method of preserving grain or seeds, or other matters, by enclosing it or them in a chamber hermetically sealed, either from light or contact with the atmosphere, with the exception of one point or opening, which communicates by means of a pipe with a chamber made in the ground underneath the upper chamber. The air in the lower chamber having by reason of coming in contact with the earth, "a proper electrical condition," is led to the upper chamber by means of the pipe of communication, and tends to preserve the grain. An "important point" is to place the grain in thin layers in the upper chamber. The air is made to pass through the upper chamber by exhausting it by means of a fan. To destroy the noxious insects which may lodge in the grain, carbonic-acid gas may be made to pass through the upper chamber. Warm air may also be passed to the upper chamber, being generated in the lower by means of a furnace. This patent is void by reason of notice to proceed not having been given within the time prescribed by the act.

To Julien Boilesve a patent was granted (date Oct. 22, 1852,) for a method of preserving all kinds of vegetable substances, and for destroying insects, by employing chlorine or other sulphureous gas. The gases are allowed to expand under a bell-jar, a box, or an air-tight cloth, and directed to the chamber, in which are placed the substances to be operated upon. In the chamber a number of sieves are superposed one upon another, so as to allow vacant spaces between. The grain is placed in these sieves, and the gases allowed to circulate under and around them. A cylinder is proposed to be used, provided with a sufficient number of holes, and which is to revolve in an air-tight case; as the grain traverses along this cylinder, which has a rotary motion given to it, it receives the effect of the gases.

William Symington in his patent of date Feb. 25, 1853, proposes to preserve milk, by obtaining a vacuum in the vessel which is to contain it; then to fill the vessel well, to close it tight. The vessel is provided with a tube of soft metal, which is capable of being easily pinched close together, so as to form a tight joint; to this short pipe a longer tube is fitted, and is led into the vessel containing a quantity of milk. Heat is applied to the small vessel which is to hold the preserved milk; a vacuum is formed by the air passing out by the tube; the milk in the large vessel rushes up by the tube, and fills the small one. The soft tube is then pinched together, and finally well soldered.

June 10, 1853, is the date of the patent granted to Peter Armand le Comte de Fontaine Moreau, for preserving milk, "by forming a vacuum within the substance, by an exhaust pump, by raising the temperature," or "by using a tube which is filled with milk, and put in communication with a reservoir containing a convenient quantity of that liquid, and covered with a layer of oil." A pump is used for exhausting the air from the milk.

William Farmer, in his patent dated Sept. 24, 1853, proposes to preserve provisions, by placing them in a vessel contained within an outer one holding water. The lid of the first vessel enters the water in the space between the two, and forming a lute or water-joint, which prevents the access of the atmospheric air to the articles contained in the main vessel.

October 12, 1853, is the date of the patent granted to Charles Scott Jackson, for a method of preserving seeds, potatoes, and other roots, from mildew, rot, fungus, and worms, by subjecting them to, or applying to their surfaces, salts of zinc, principally the sulphate of zinc. "To prepare potatoes for seed they are first washed clean, cut in the usual manner, and steeped in a solution of the sulphate of zinc from eight to twelve hours."

Atmospheric air is proposed to be desiccated and cooled for the purpose of preserving and drying grain in air-tight reservoirs, by first withdrawing the moisture by causing it in a heated state to pass into a vessel in which are a number of pipes, the temperature of which is kept low by the constant circulation through them. The heated air, by coming in contact with the cold surfaces of the pipes and the interior of the vessel, deposits its moisture by the condensation of its vapours. The air, thus cooled and desiccated, is to be drawn through the reservoir in which the grain is placed, by means of an exhauster. The name of the patentee of this method is Edward Acres, and the date of the patent April 30, 1855.

R. S. B.

REVIEW.

THE PROGRESS OF AGRICULTURE.—A PAMPHLET ON STEAM CULTIVATION.

BY J. A. WILLIAMS.

The great interest and attraction of the approaching national meeting will unquestionably centre in that one magic word—STEAM. We may all, as heretofore, indulge in our peculiar pets and fancies—hurry to see who has got the best short-horn—how the horses show—or whose flock is this year in the ascendant. But at such a time any of these are scarcely more than subsidiary sections of the exhibition. The grand points to which we look here for a solution are—Who after a three years' peace can now produce the best steam-engine? And, again, is the steam-plough really so improved as to become a practical implement of the farm? Will the Society dare to recommend it as such? And, if so, on whom will their choice fall—Fowler, Smith, or Romaine? There is no doubt, either, that the latter is by far the more important consideration of the two. We have already some considerable experience of good working steam-engines; but as to steam cultivation, the public mind is just ripe to know and do more. After much labour, some disappointment, and many difficulties to overcome, the several inventors of such implements have at least succeeded so far —The agricultural world, the practical farmer, has fairly taken up the subject. He is only waiting now to know when he is to begin, or how he is to set about the business.

Nicely timed, then, to the occasion, one of the most enthusiastic of these pioneers has within the week issued a pamphlet on steam cultivation. This essay has the double recommendation of being written by a gentleman who has not only deeply studied the question, but who is himself a tenant farmer. His best sympathies must be accordingly with the class he addresses. However far his own zeal may lead him, he will feel at the same time how far he will be justified in taking his brother-farmers with him. He will know, moreover, from his own experience, how far they are *prepared* to go with him, how their lands actually lie for the reception of the new power, and how much alteration will be required before this can be fairly or properly applied.

This promises soon to be the great or only obstacle. We have within the last few months witnessed such certain progress in the art of ploughing by steam, that the attainment of the object might even now be safely recorded. Early in the spring of the year, Mr. Fowler declared at a public meeting that he considered his share of the good work done. Its consummation rested now with the farmers and landlords—in his opinion, more especially with the latter. Let them so prepare their estates that the system may be easily applicable. Let them directly encourage their tenantry to avail themselves of its use. In a word, it would seem that the steam-plough was ready for the land, if the land were ready for it. The paper now published by Mr. Williams, of Baydon, comes very much to the same thing. He introduces it with a plan of a six-hundred-and-forty-acre farm laid out into ten fields or divisions of sixty-four acres each. He fits this with a tramway, moveable rick-houses, tanks, and so on, that read and look prettier than it would be perhaps possible very often to render them. However, this is the key-note of Mr. Williams's song. He assumes with very excellent discretion that we have already heard something of the several methods of ploughing by steam, and he devotes his essay accordingly to a branch of the subject, so far, anything but overdone. His reading of the question is in every way acceptable. It is, in fact, to this we are now coming. The economy and practicability of the process must be preceded by a certain outlay in adapting our farms to its use.

Our author makes the following half-dozen desiderata the great points of his charter:—1st. The most advantageous mode of laying out fields for steam culture. 2nd. The obtaining a self-acting supply of water for the engines and other farm purposes. 3rd. The grubbing and clearing of hedgerows and timber, by means of the engine and ploughing machine, and making use of the same for fuel. 4th. The levelling and filling up of pits, and blasting of rock-stone, where existing. 5th. The beneficial exchange of lands between neighbours where lying intermixed; the facility with which it might be done. 6th. A few words on autumn cultivation.

We have already referred to his plan of laying out a farm. Of course the fewer hedge-rows, and the more level the land, the better. But the following concomitant advantage may not be so generally known:

"Opposite to fields No. 3, 4, 7, and 9 are stationed rick-houses: these are on grooved wheels, running on triangular wooden rails, dowelled at the end, and removed from the rear to the front as the house travels forward, drawn by the engine at a slow pace by means of the hauling windlass used for ploughing. At harvest they can be placed where required, that is, two at least opposite the roots, the others near the Lent corn. Those opposite the roots could be filled with wheat; after harvest the wheat threshed out, and the building will then make a bullock-shed for the remainder of the year; a part of it being used for chaff-cutting, turnip-slicing, &c., the engine at the same time turning a windlass for hauling the roots from the field opposite into the building where required. This could be done either with the ploughing windlass, or with drums of a lighter description attached to the building for the purpose. As the field of roots opposite the sheds became cleared of the *quantum* to be drawn off, the straw on the opposite side used up, and the manure accumulated, the engine could pull the building opposite to another part, and begin afresh; the hay and cornricks affording a supply *ad libitum*, and the roots being fed close to where they grew. Thus, by stacking the produce in the field (thereby making the most of valuable time in harvest), the manure being left in the right place, and the roots brought in by the engine, an amount of hauling would be saved quite unprecedented, and it will be found to be much less cost and trouble *to move the buildings than the produce!*"

The tanks, or a self-acting supply of water, are to be wells in the field, dug and discovered on the principle of Lord Berners' test-holes—to whom, by the way, the pamphlet is dedicated. The grubbing of hedgerows, and the filling up of pits, are matters that at once suggest their own remedy. Important as they are, in the way of obstacles, we need not follow the writer in the means for their removal. Of the next cause or impediment, he says truly enough:—"There are very few parishes in which a beneficial exchange of land between neighbours might not take place, to the mutual benefit of all parties; but the expense has hitherto put a stop to such a desirable object. As steam cultivation becomes more general, so will the inconvenience of an acre-field belonging to one individual, intercepting a good long field of his neighbour, and causing him to make two of it, become more apparent. In all probability the other party can give a piece in exchange. Crooks and angles often lie close to lands of the other, which again would benefit both, by making each a straight outside; for however picturesque in appearance the crooked boundaries might be (and one would think such must have been the object of our forefathers), they are quite out of the question now that the steam-engine is brought into the field."

And, he adds, "I have legal authority for asserting that under recent acts an exchange of land may effected on an average at one-fifth, and in some instances at one-tenth of the expense incurred in times past."

We repeat that the now great difficulty in the way of steam culture is its proper application. The onus thus shifts itself from the inventor to the employer of such an agent. With none, however, does the due performance of this rest more than with the landowners. It has been our lot of late to hear many a country gentleman cry up the steam plough. It is, indeed, a very popular theme to go on. But, in doing so, he must ask himself a home question or two. Is he individually doing anything to assist its progress? Has he volunteered to help his tenants to adapt their lands to this new state of things? We have had some rare examples of enthusiasm on the one side: let us look for a little welcome on the other.

THE BABRAHAM RAM-LETTING.

If Mr. Jonas Webb were a citizen of the United States, he would probably be referred to by exultant Yankees as an "institution." As, however, a kind Providence has cast his lot in Old England, he is simply a "great" agricultural "fact." For thirty-two years his fame as a breeder of Southdown rams has been steadily maintained and extended throughout England, and one may almost add, throughout the world. Distinguished agriculturists from various European states, the Transatlantic Republic, and the Australian colonies have sought to improve their stock from his reserves. That the result has been mutually profitable is proved by the steady and continued support which Mr. Webb has received, and that the cause of agriculture generally has been advanced by his perseverance on the one hand, and the enterprize of his customers on the other, can admit of no doubt. Happy the country which is benefited by such ardent disciples of useful pursuits!

Mr. Webb met his friends for the thirty-second time on Friday, and greeted them with the same cordial, yet simple hospitality which has always distinguished his gatherings. The visitors on entering the trim grounds and comfortable house could scarcely dissipate the impression that it was 1857 or 1856 over again. Wavy corn crops and beautiful rams met the eye as usual, and the new-comer received the same cordial shake of the hand, and the same friendly invitation to "fall to" immediately, on the good cheer provided for his entertainment. But a closer examination showed that the weather, a most important matter in agricultural out-door meetings, was not so propitious as on former occasions, while from various circumstances, to which it will be seen Mr. Webb made allusion after dinner, the attendance was not so numerous, or the proceedings quite so animated. About eleven o'clock the rain commenced falling heavily; but two commodious marquees, erected on the field appropriated to the rams, sheltered the company from the annoyance to which they would otherwise have been subjected. The clouds afterwards cleared off a little, but the hopeful prospect proved delusive, and several other showers more or less heavy fell at intervals during the afternoon. Englishmen's spirits are not generally improved by a "juicy day in the country," and the superabundance of moisture certainly did not encourage speculative tendencies. In fact, a well-conditioned spectator was heard to remark, that "it took the go out of him," and it is not altogether unlikely that others experienced the same feeling. Moreover, the gradual reduction of wheat prices to an unduly low point has a great tendency to confine enterprize which would have free scope under more favourable conditions.

To revert to Friday's proceedings: There were altogether 140 rams offered for competition, viz., four 5-year-olds, six 4-year-olds, twenty-four 3-year-olds, thirty-seven 2-year-olds, and sixty-nine yearlings.

About two hours having been devoted to their inspection, the public letting commenced at half-past two.

Mr. S. Carter Jonas, of Cambridge, officiated as auctioneer—for the first time here—with much ability and promptitude. His rostrum was a carriage placed in the usual spot under the lee of one of the hedges. The rams called for were brought one by one into a space fenced off, the company ranging themselves round the ring formed by the railings. The rain was falling rather smartly when the auctioneer made his appearance, but it did not subsequently interrupt business. Mr. Jonas having read the conditions of letting, he made a few appropriate and telling remarks on the business of the occasion. The Brabraham flock enjoyed a world-wide reputation, and it was sufficient to say that the present was the thirty-second letting. Looking at the great number of superior young sheep in the hurdles, he might safely observe that the show on the present occasion was better than it had been at previous gatherings, and more than supported Mr. Webb's reputation. The prices set on the sheep were low, and Mr. Webb would be disappointed if they did not realize higher rates. He (Mr. Jonas) trusted that the company would be prompt and liberal in their bids, so that they might arrive as soon as possible at that appropriate termination of the proceedings—dinner.

The second sheep brought into the ring excited some competition. The ram (No. 40) took the first prize at Salisbury last year, and the biddings rose rapidly from 60 to 70 guineas. They afterwards advanced to 75 guineas, and at this rate the purchaser was declared to be Mr. Heasman, of Sussex. This sum was not subsequently exceeded by any other lot, and Mr. Heasman was, therefore, the purchaser of the highest priced ram. Last year this position was occupied by Mr. Lindsay, of New York, who through Mr. Sabine, of Newmarket, hired a ram at the enormous price of 197 guineas!

For the third sheep called in (No. 211) there was also some brisk bidding, the price offered advancing rapidly from 30 to 58 guineas. At this rate the ram was all but sold, in fact he was taken partially out of the ring when he was recalled, and let for four guineas more. It was reported that Mr. Overman was the hirer. No. 175 was knocked down at an advance of 11 guineas to Mr. Marjoribanks; No. 41, at an advance of 6 guineas, to Mr. Rigden; No. 95, at a similar advance, to Lord Radnor; and in a few other cases small premiums were obtained. Generally, however, the biddings were slow, and a large proportion of the sheep brought into the ring left it at the same rates at which they were called in. Among the other hirers, whose names were mentioned, were Lord Sondes, Mr. Adeane, M.P., Mr. Twitcher, Mr. Dobito, Mr. Bosanquet, Mr. Dobson, Mr. Moody, Capt. Bowyer, Mr. R. Palmer, Mr. Rutleigh (Kent), Mr. Turner, Mr. Jonas, &c. The following table shows the order in which the sheep were called in, and the prices realized.

No.	Called in at	Hired at	No.	Called in at	Hired at
101	25 guineas.	25	8	8 guineas.	8
40	60	75	126	9	9
211	30	62	5	40	40
9	18	21	20	18	18
11	17	17	37	7	7
175	28	39	82	13	13
61	18	20	54	12	12
42	22	22	47	30	31
195	18	22	147	13	13
41	60	66	52	9	9
202	15	17	30	10	12
44	35	35	28	23	24
96	30	30	114	10	10
32	9	9	17	18	18
95	20	26	105	20	21
185	20	20	198	15	17
124	17	17	16	12	12
181	20	24	205	30	30
4	30	30	59	7	7
177	13	21	34	14	14
163	6	6	152	7	7
134	9	16	154	7	7
94	40	40	165	7	7
22	9	9	204	30	30
64	8	8	189	11	11
193	17	19	186	20	20
144	9	9	84	11	17
33	15	19	55	12	12
192	16	16	81	7	7
136	9	9	29	8	8
183	18	18			

This gives a total of 61 rams let, and an average, according to Cocker, of £20 19s. 3d. each. The comparative results of the public lettings for the last seven years will therefore stand thus (but at the same time it should be observed that the public transactions do not afford a complete view of the business done, a good deal being effected by private contract afterwards):—

Year.	No. Publicly Let.	Average Price.
1852	69	£22 3 1
1853	71	22 6 3
1854	75	25 4 3
1855	77	25 15 2
1856	77	33 1 4½
1857	65	27 17 7½
1858	61	20 19 3

It may be interesting to observe that it was stated that No. 4, let at 30 guineas, was hired at 102 guineas as a yearling; that No. 5, hired at 40 guineas, has been let for 400 guineas within the last three years; and that the sire of No. 105, let for 20 guineas, was the celebrated ram hired last year at 197 guineas.

Shortly after 4 o'clock, the ring having gradually thinned, the auctioneer thanked the company for the biddings which they had made, and announced that the next lot was—

THE DINNER.

This took place, as usual, in one of the farm sheds, which was decorated for the occasion with flags and evergreens. Three long lines of well-supplied tables were occupied by between 150 and 200 guests, the chair being filled by the Hon. Eliot York, M.P., while at the end of a remote vista the goodly person of Mr. Webb might be discerned in the vice-chair. The seats at the head table were occupied by Mr. H. J. Adeane, M.P., the Ven. Archdeacon Yorke, Mr. T. St. Quintin, Mr. S. Batson, Mr. C. Pemberton (High-sheriff of Cambridgeshire), Mr. Parker Hammond, Mr. Sydney Tharpe, Mr. Hicks, Mr. Parker Hammond, jun., &c. There were also present at the dinner, or on the ground during the day, Col. Wale; Capt. Davis, R. N., chief constable of Cambridgeshire and Huntingdonshire; Mr. Clutterbuck, Hertfordshire; Mr. Rigden, Sussex; Mr. Heasman, Sussex; Mr. J. Clayden, Bishop's Stortford; the Rev. Mr. Benyon, Livermere Hall, Suffolk; Mr. H. Woods, steward to Lord Walsingham; Mr. Purvis, Brampton, Huntingdonshire; Mr. S. Jonas; Mr. H. Overman, jun., Norfolk; Mr. Lugar, Hengrave, Suffolk; Mr. Jackson, Wendy, Cambridgeshire; Mr. Robinson, Cambridge; Mr. Dobito, Kirtling, Suffolk; Mr. Copeland, London; Mr. Pym, Chesterford; Mr. Ratcliffe, Newmarket; Mr. J. Archer Houblon, Hallingbury, Essex; Mr. Read, London; Mr. H. Thurnall, Royston, Cambridgeshire; Mr. Rigden, jun., Sussex; Mr. W. Pate and Mr. R. Pate, Haddenham, Cambridgeshire; Mr. C. Barnard, Harlow, Essex; Mr. J. C. Cornwall, Bishop's Stortford; Mr. E. Frost and Mr. H. Frost, West Wratting, Cambridgeshire; Mr. T. Nash, Carlton, Cambridgeshire; Mr. J. Grimwade, Hadleigh; Mr. H. Grimwade; Mr. J. S. Phillips, Barton, Suffolk; Mr. H. Clayden, Hadleigh; Mr. Tuxford, London; &c., &c.

The CHAIRMAN gave the usual loyal and complimentary toasts with his customary grace and fluency, and, in introducing each subject, spoke at considerable—possibly too great—length. Referring to Prince Albert, he observed that his Royal Highness was a successful brother-agriculturist, and had gained much credit as an exhibitor of stock. Having once or twice been a spectator at the exhibitions at Christmas, the idea—he hoped it was not a disloyal one—had crossed his mind, that Prince Albert had had a good deal of luck (laughter). At the same time they did not grudge his Royal Highness any of his triumphs; on the contrary, they were happy to see him a promoter of one of the great national interests (applause).

To the "Army and Navy," Colonel WALE and Captain DAVIS, R.N., responded; and the toast of the "Bishop and Clergy of the Diocese" was acknowledged in a most conciliatory and pleasing address by the Ven. Archdeacon YORKE, which elicited the thorough approval of all his hearers.

Mr. Fisher Hobbs, and several other gentlemen, having to leave by an early train, were unable to be present at the dinner. Mr. Hobbs bid up to beyond sixty guineas for a ram, which was ultimately secured by Lord Leicester.

"The Landlord of the Soil" (loud cheers).

Mr. ADEANE, M.P., responded, and observed that the greatest ambition of his life was to live in friendship and good-will among his neighbours.

The CHAIRMAN, in giving the toast of the evening, said in the course of the proceedings he had been face to face with the Queen, shaken hands with the squire, enlisted himself with what Mrs. Malaprop called the "milintary" (loud laughter), and ruled the waves, like Britannia, with the sons of the ocean. He had burnt like a rocket, and he now came down like the stick. But he found himself in the midst of the fold, and face to face with the owner of the fold, whose triumphs they were that day met to celebrate (applause). With reference to the fold, he had to announce that 61 sheep had been let before dinner at an average of £21 each. When it was remembered that these meetings had now continued for no less than 32 years, he thought it would be considered that the old adage was not true, and that there was something to be preferred before leather, viz., mutton (laughter). But was mutton always mutton? Was it not sometimes pork (laughter)? As in duty bound, he had endeavoured to cram himself down upon the subject, and he found that both male and female mutton contained a good deal of pork. In one perplexing passage a sheep was called a hoggett (laughter). A sheep was also called a tup hog; and as if by way of compensation for a practice resembling that adopted in Turkey for the purpose of establishing a class of compulsory bachelors (much laughter), he was called a wedder. Again, after shearing, he was called a shear hog; and even the fleece sounded rather grisly, for it was called hoggett wool (laughter). The females also exemplified swinish elements in their nomenclature, for a female lamb was called a gimmer hog and a ewe hog (laughter). He thought, without going further into the matter, that he had a right to propound a question which he now proposed, and which would, he thought, puzzle the best initiated to solve in less than twelve months. The question was—What, in a sheep, whether male or female, was the relative proportion of pork and mutton by which the joint appellations were justified? (loud laughter.) Passing from the fold to the shepherd, he could assure them that their host was fast becoming an annual difficulty to him. His demands were so large that, like the French financier, Necker, he (Mr. Yorke) was always afraid of a deficit. He had sought, in times gone by, to furnish a kind of portrait of Mr. Webb. He had frequently depicted him in prose, but there were certain qualities of mind and nature which could not be approached by an artist. Neither Rubens nor Titiens could paint the inner man. Who could gild refined gold, or paint the lily? Still he would make one more effort. An article in the *Quarterly Review* for April, on the "Progress of English Agriculture," stated that the Leicester breed of sheep was for some time adopted by Mr. Coke, but afterwards the Southdown was substituted for it. The perfection to which this breed had been brought in the present generation by Mr. Jonas Webb might be said to be due to one of those trivial circumstances which were always influencing events in the world. This was the circumstance: His grandfather was a breeder of Norfolk rams, and it was the amusement of the old gentleman, at his annual sales, to set his grandson riding on his tups, holding fast by their huge horns. Could they imagine their present host holding fast in this manner? (laughter.) These races on sharp-backed rams determined Jonas—and the letters in the word Jonas could, singularly enough, be transposed to Jason, the great author of the golden fleece—to breed animals with better saddles of mutton. The beautiful firkin-bodied Southdown for which Mr. Webb refused £500 at the Paris Exhibition had been one of the results of the experiments made (cheers). After some further observations on Mr. Webb's estimable qualities, the hon. member proposed that gentleman's health, and "Success to him in all his undertakings" (loud cheers).

Mr. WEBB, in responding, said he feared their worthy chairman had praised him more than he deserved, but he would try to merit what had been said of him. With regard to the company generally, he thanked them most sincerely for the kind manner in which they had supported him. The present hiring had resulted in one of the lowest averages which had taken place for years; but he was not at all disheartened by this state of things, to which various circumstances had contributed. If his friends had been selling their wheat at a higher rate, he should no doubt have had a better price for his sheep; and he hoped that those gentlemen who had made such good purchases during the day would come forward with better prices next year. Something had been said by the chairman during the evening about the Limited Liability Act, and he thought they had had limited liability in operation during the day. Wheat had now become almost so cheap that they could feed dogs and pigs with it; this would clear it away, a better price would be obtained for it, and consequently a better price for sheep. The health of his landlord had been proposed and drunk, and the chairman had observed that a good landlord made a good tenant. He did not profess to be a good tenant, but he had got a real good landlord. Mr. Adeane was certainly rather a young man, and he (Mr. Webb) had had the honour of living under his brother, father, and grandfather; but he had never met with a better landlord than his present one. He had publicly let rather fewer sheep this year than on former occasions, but he had been doing a good deal of business with foreigners, who could not be present, and he could not eat his cake and have it too. Last year he let one of his sheep to an American for 197 guineas; but since then there had been an extraordinary panic across the broad Atlantic, and their American friends had not thought proper to come across the water. On previous occasions he had also had very material support from the Emperor of the French. Another customer, a Norfolk gentleman, was about to dispose of his sheep, and he (Mr. Webb) trusted he might have a good sale. Having entered into these explanations, Mr. Webb closed his observations by expressing his hope that the present occasion was not the last on which his friends would assemble under his roof (applause).

Mr. PARKER HAMMOND proposed the health of the hon. chairman (Loud cheers).

The CHAIRMAN returned thanks, and assured the company that his services were always at the command of his friends.

Mr. WEBB expressed his hope that Mr. Yorke would do him the favour next year to fill the position he at present occupied.

"The High Sheriff of the county"—(Cheers).

Mr. Pemberton, in acknowledging the compliment, said the present was a kind of public dinner given by a private individual, who had become as it were public property. Mr. Webb, in many respects, resembled, he thought, the late George Stephenson, who had been pronounced a fit inmate for a lunatic asylum in consequence of his prediction with regard to the speed of the locomotive. Who would not have said the same thing of Mr. Webb, if he had predicted that he would ever have received 197 guineas for the hire of a tup?

Mr. St. Quintin proposed "Prosperity to Agriculture," associating with the toast the name of Mr. Clutterbuck, of Hertfordshire, whom he eulogized as being, both in theory and practice, a complete agriculturist (cheers).

Mr. Clutterbuck responded, and expressed his opinion that the well-being of the county depended, and always must depend, upon the prosperity of agriculture. Agricultural prosperity had now become a relative term, for that condition which would have been prosperity in the days of the Tudors would be stagnation in the nineteenth century. There could be no doubt that science presented to the agriculturists of the present day means of dealing with mechanical and physical difficulties in a manner of which our ancestors knew nothing; and that the agriculturist could not now exist who dealt with the same tools in the same manner as in the olden time. Another point, with regard to which he thought he might appeal with confidence to practical men, was that a superior class of labourers was required; and no one could go into the premises of a farmer who was dealing with the difficulties of agriculture in a scientific manner, without observing that the labourers presented evidence of superior intelligence and superior treatment. For himself he had only done what he believed every Englishman did who found himself face to face with difficulties—he had done his best to get the better of them. Mr. St. Quintin had referred to some operations which he had carried on in Hertfordshire, and every reasonable facility should be afforded to any gentleman desirous of inspecting them; a certain amount of success had, he believed, been obtained, and he trusted that he and his brother-farmers might not only have increased produce, but better prices (Hear, hear).

Mr. Hicks, in suitable terms, proposed the health of the buyer of the highest-priced tup—Mr. Heasman, of Sussex.

Mr. Rigden, in the absence of Mr. Heasman, returned thanks, and stated that he was himself the next bidder for the sheep Mr. Heasman had hired. He (Mr. Rigden) congratulated himself, however, that he had got Mr. Webb's best sheep, although he did not pay the highest price for it (laughter). He was greatly pleased to see some Sussex gentlemen present, for he had no hesitation in saying that not only the county of Cambridge, but also the county of Sussex was deeply indebted to Mr. Webb. No man in England had done more to improve the breed of Southdown sheep, and he (Mr. Rigden) felt deeply grateful to him. He had for many years taken some of Mr. Webb's best sheep, with the aid of which he had been able to beat every breeder in Sussex, not excepting the Duke of Richmond, although it was no easy matter to compete with his Grace, who had sometimes been successful. He (Mr. Rigden) trusted that Mr. Webb might go on and prosper for many years to come.

The Chairman gave "Mrs. Webb and Family," a toast to which a gentleman present added the sentiment, "May their hearts be as large as their crinoline, and their faults as small as their bonnets" (laughter).

Mr. Webb, in reply, said he hoped the ladies would profit by the fate of his poor sun-struck bull, and have bonnets which would cover what brains they possessed (laughter). Mr. Webb then proposed the "Royal Agricultural Society of England," coupling with the toast the name of Mr. Jonas.

Mr. Jonas responded, and expressed his belief that the Royal Society had done much for the advancement of agriculture. For his own part he was in a very different position from his friend Mr. Webb; that gentleman had gathered honey, and he (Mr. Jonas) had spent his money (laughter). With the exception of a prize for an essay, he had never derived any benefit from the Royal Society; but he hoped every farmer throughout the country would endeavour to support it to the utmost of his ability. He cordially wished prosperity to every British farmer; but if that prosperity was to be realized, they must have better prices than they were receiving at the present moment (loud cries of Hear, hear).

The Chairman then gave "To our next merry meeting," and some of the company adjourned to tea and coffee, while others entered on their homeward journeys.

THE ENGLISH FARMER IN FRANCE.

Sir,—I have sent you a stem of sorgho above nine feet high, and another I have forwarded to the Royal Agricultural Society.

But before I write further, would you be so good as correct a typographical error in the fifth paragraph of my last letter? For "*Agricultural Society*" of Paris, read "*Acclimatising Society.*" It is a most useful one, and must not be misnamed in the leading agricultural journal of England.

I cannot help giving you further information on this extraordinary plant, though I dislike continuing a subject in two letters; but all I knew of it before was from hearsay and letterpress. Of course, they were well authenticated, or I would not have written as I did; but I have *now had ocular demonstration*, which is the best of all; and by sending the specimens to the Royal Agricultural Society and to your office, all may see it who please. I took it from the cart-shed of a small farmer ten miles from Lille; he had grown them in his garden last year, and how far he cut them from the ground I cannot tell: it did not appear that he had taken any pains with their cultivation; he had a few seeds given him, and he had simply stuck them in his garden. They must attain a most enormous height in hot climates. I have also been to a distiller's about ten miles from here, who has what is here considered one of the largest farms—250 acres. He had planted it, last year, in a very imperfect manner, putting four or five seeds in each hole: he sowed it the last day in April 1857, a yard apart and two feet in the rows. At first it made very slow progress, but after a month it took a more rapid start, and when the plants were *nearly as high as himself*, middle of September, he removed about two-thirds of them, and gave them to his fatting bullocks, of which he always has from forty to fifty, to eat the refuse of his distillery; they ate it with the utmost avidity: even little pieces which dropped among the litter they picked up. At this age it must have been very coarse and hard; and if they liked it in that state, it only proves how sweet a flavour it must have. He distilled it experimentally, after standing till November, and obtained 7½ litres (fourteen pints) of alcohol from 2 cwt. of canes. The land on which it grew is now wheat, and a splendid crop it is. We all know how bad a preparation for this is ray-grass, whether Pacey's, Italian, or common; and should this turn out (as I expect) to be of quite a different nature to any of our grasses, and so a plant which feeds not on the food of wheat, it will greatly add to its value as one of our alternate crops. This year he has increased his acreage: it is now about three inches high in a piece of four or five acres; and should it turn out as he expects for soiling, he will enlarge his growth still more next year, he told me. A more practical or intelligent man I never met with, and one not likely to be misled by fancies or mere novelties, but who is fully alive to the necessity of assimilating himself to circumstances and changes over which we have no control. Forty years ago his father established the distillery for extracting alcohol from potatoes: that he continued to do until the disease completely stopped his trade; he now uses the betterave. The sorgho, he thinks, will never be produced in these northern departments for that purpose, but for feeding he is very sanguine. I shall every fortnight go to his farm to see the progress it makes, and I hope and believe it will be such as to induce me to advise an extensive growth of it in England. Depend on it, I will never continue to assist in introducing a plant that may be likely to fail.

I must not omit to add, he told me it particularly ought to be *steeped* in water for three days, as it was such a hard dry seed, and slow to move in the earlier stages of its growth. The best way to sow it for trial is, some one foot by three inches, some six inches by three, and some broadcast. A few of the largest stems might be left to mature until November, but it ought to be cut before the frosts come on.

Excuse me, Mr. Editor, for this second edition; but from the letters I have received I find it has excited unusual interest, and I believe many will be pleased to read this, and find in it confirmation of what I have before written, and I also thought it right to inform your readers where they also could SEE for themselves specimens of the plant.

The more is seen of Flanders, the stronger must be the impression that her character, of being the best cultivated district in Europe, is indeed well deserved.

I cannot perceive how more can be obtained from the land, either in weight or money; and certainly I never saw so much manure employed. Their courses of alternate cropping, and (except as regards their hay and clover), their general management, their excellent ploughing, and their constant hoeing and hand-weeding, appear to me to be nearly perfection. I have seen many a piece of broadcast wheat hoed with little onion hoes—the handles only a foot long; and, again, when the corn was a foot high, thoroughly hand-weeded: the hedges (what few there are) weeded also. The banks of the ditches are all mown; and there is a law which obliges them to cut all thistles (an act of parliament of like nature would not be amiss in England). Their great product per acre in value is greatly owing to the sort of crops they grow; some of which we are prevented producing by law, and some we have no sale for, because we have no factories to work them. I cannot help thinking it is well worth our while to make *inexpensive* trials, on a small scale, of some of them. I shall in a few days publish a pamphlet on the cultivation and management of such as are suitable to our soils and climate; and which, I believe, if *manured* and attended to in the same way as here, will produce as good results. There is no particular difficulty in any of the operations; but if we found the crop successful, and our labourers obstinate and difficult to teach, many an experienced man of good character would be glad to come, at the expense of a pound, per rail and boat.

They have, or rather would have, as much twitch and black grass as anywhere in England, were they not so unremitting in their care to destroy them. I once had a farm in a twitchy district, and it was said to be impossible to have a field entirely free from it, because it is propagated by seed, as well as by roots, at every joint. My old neighbour should come here. Had I a son I wished to learn farming I would send him. Many an intelligent and respectable farmer would be glad to take him at little expense; and with the knowledge he would obtain how to make the most of land, I am sure he would learn nothing bad. They are a very moral people; and, unless he had indeed a weak mind, the more he saw of Catholicism, the more he would be disgusted with it.

The other day I went nine miles to the largest farm about here—three hundred acres; all in a ring fence, and, except round the orchard, not a hedge upon it. The owner, a wealthy man, lives on it, and cultivates it himself. Adjoining his house is the farm-yard, and near by his large beetroot sugar factory. The whole is of brick; high ceilings, high roofs, and a most perfect and substantial structure. One side of the house forms one side of the farm-yard: the other looks into a well-managed garden with high wall, shutting out a very pretty view. (This is commonly the case, illustrative of the minds of all here, more or less. Taste means literally the palate; and no image is so devoutly worshipped as the image of the Emperor on the coins of the realm.) The yard is surrounded with a raised path six or eight feet wide, one side being entirely occupied with the "stables" of the fatting bullocks—cows I might call them, for ten cows are bought in Belgium and fattened here to one bullock; above one hundred are generally, but only eighty were then, tied up. They had 2lbs. of linseedcake, 3lbs. of rapecake, and 2lbs. of "oeillette" cake, some of which is East Indian, and some French; but the two latter articles he mixed with the water which is constantly before them. They have also half a hundredweight a day of the "pressings" of the sugar-beet. This they have all the year round, as I said in a previous letter; it will keep in a clamp for three or four years. At night they are *racked* up with best wheat-straw, of which he told me they ate about 10lbs., and the rest was in the morning used for litter. I never saw higher, wider, or better ventilated cattle-houses: twenty-four were tied in each, and an air chimney passed through the loft over, into the open air, with a shutter at bottom to regulate the temperature; in fact, the whole of this gentleman's establishment is regulated by utility, not cost; his cart-horse stable (he has twenty-four horses) elicited a remark of surprise at the great width of stall allowed to each: he told me it was done to save horses from the glanders; some few years back it was a serious thing among the cavalry horses of France; an order was issued that every horse should have more space, and more stables erected, and from that time the disease has sensibly diminished. I have not for many years heard of any horse establishments in England being troubled with this horrid disease; but should any now have it, the owners would do well to give room and air. The manure made from the cattle, and wheat-straw, was thrown in the yard as it came from the stalls, and as I had noticed the general use here of long dung, I asked him if he had it turned for a fortnight (as I must say I should have done) till it was full of heat, and the woody-fibre of the straw well broken by the fifteen days of fermentation? But no, he said: he always used it as he wanted it, quite in its raw state. He took me into his steam-engine house to see his thrashing-machine, which had a cloth hung before the man (feeder), and a wooden chimney to the roof, which took away the whole of the dust while thrashing; a cheap, most useful, and benevolent invention, for many a man has suffered severely from this. Should any gentleman like to apply this to a *fixed* machine, if he will write me, I will, with pleasure, send him particulars and working drawings, so that his carpenter can understand it. We then walked round his farm: he had 45 acres of sugar-beet, and 120 wheat; magnificent corn, sown only at the rate of 1½ bushel an acre; and what surprised me, he only allowed the same quantity of seed for his oats, which appeared to me so thick, I never should have imagined they were thin sown, had he not told me. His sugar-beet was being hoed with a light "horse" hoe, drawn by one man and *pushed* by another; he had ten of these going. No sheep were on the farm: two or three cows for the house; hogs in plenty, but fatting bullocks were his main stock. His ten waggons were all gone for manure, bringing 40 tons. I spoke in praise of the "whippletree" mode of attaching the horses in pairs to the waggons, but remarked on the absurdity of the length of traces. He gave his opinion that one or two feet more or less in the trace was of little or no effect on the power of draught, and that the horses had more liberty. I wish some of your scientific readers would give us the proof and *rationale* of this matter. His wheat produced an average over five quarters to the acre. This gentleman is considered one of the most scientific and practical farmers about here, and has been in the habit of having young men as pupils; but he does not like the trouble, and at present he and his sons attend to all the daily duties of the farm as unceasingly as if he depended on the profits of it; but he is very fond of it, as well he may be. 300 acres in one piece; just sufficient inclination to carry off heavy rains; not a stone nor a wet place; house in the centre, and paved roads in every direction. A factory on the farm to use all the roots, and fatting beasts to convert all the straw. His own property; no tithes; pretty country, and always dry and clean; what ditches there are he is filling up, after laying in 3 and 4 inch pipes; not a tree to cast shade and waste the nourishment of the land, except one little copse in the centre; well-behaved and intelligent labourers, and a pleasant climate—what man can want more? The oiellette cake which he gave his bullocks is a poppy grown here for salad oil. It is a crop too generally sown here to be merely spoken of at the end of a letter.

Since my visit to this farm I have met with a gentleman from Prussia, who so interested me by his account of the great advantages possessed by the *yellow lupin* over the old white Italian lupin, that I have written into Prussia fro some seed, as now is the time for sowing it. On the poor sandy lands of Prussia it has made in the last six years the most worthless estates useful; if sown for corn, it is so unexhausting, that for years together it has been grown on the same land, with evident improvement to the soil.

Youry truly,

THE ENGLISH FARMER IN FRANCE.

Lille, June 16th, 1858.

P.S.—Since my last I have transplanted some *sorgho*, which immediately took root; and I also believe that if cut for soiling, and therefore not allowed to seed, it will stand a second year; but we shall see. My pamphlet on its cultivation and use is ready for delivery.

THE CULTIVATION OF THE TURNIP CROP.

The extended cultivation which this crop has received of late years, has had a most important influence upon agricultural operations; large tracts of land which were previously barren wastes have under its aid been rendered valuable sheep and barley farms, and land which had for many generations been under cultivation appeared to revive under its reign, and to deck themselves with renewed vigour. In fact, it introduced a new life into farming operations, and the energy thus imparted still continues. The turnip crop must be looked upon as the foundation of profitable farming upon the majority of farms, and upon it very many remunerative systems have been based, so that its returns, although they are indirect, are still sure. The season is now advancing in which this becomes a prominent duty of the farm, and engages our chief attention, for its successful growth well recompenses the farmer for the anxiety and labour thus devolving upon him.

The system pursued will naturally vary with the result to be gained, and the time at which the crop may be required. Some farms are short of grass and fodder throughout the spring months, whilst in many cases the autumn is the trying time, and on most farms the winter store of roots is necessary. To meet these varied requirements from the same crop, and also to have the produce in its best condition at the time needed, is a most desirable object to be realized. When the circumstances of the farm require food to be provided in the autumn, the crop for this time requires our earliest attention in the season. The last week of May and the first in June, according to variation of locality, will be found to be the best time for sowing, and my own experience leads me to say that the white stone turnip and others of the same class are the best for early autumn food. I am well aware that localities vary so much as to cause much difference of opinion as to the most suitable varieties, but the experience of the district must decide when the circumstances of any particular neighbourhood require a local variation in the practice. However, the early white-fleshed turnips are generally the best suited for autumn food, and when sown as directed, come in of considerable value to the sheep master in the autumn of the year. Some of the more hardy varieties and hybrids will succeed the above for feeding. These have generally coloured skins, with white and occasionally yellow flesh. There are innumerable varieties, and every district has its peculiar favourites. These roots, although holding this position as regards consumption, do not require such early sowing as the swede, which is required for later use. The time for sowing swedes varies in different parts of England, and it is often surprising to hear the strong contentions as to the best time for sowing swedes, some sowing in May, others maintaining that the end of June is the best time, forgetting altogether that as circumstances differ, so also must our practice. No doubt each of these extreme instances may be right for its own district, and here again local evidence must decide. In by far the majority of cases the second and third weeks of June are thought the best time for sowing the main crop, but each person must rely upon his own and his neighbour's experience in deciding this matter.

There are, however, peculiar circumstances which limit the seed time for swedes, and allow only a short time for sowing this most important crop. Much is to be referred to the peculiar habit of the plant's growth, but still more to its diseases and the attacks of insects. Those districts which are favoured with a soil and climate favourable to the growth of swedes, can produce a crop within a shorter period of time than those districts which are not equally favoured, and the influence is also manifest when only one of the conditions is in operation. It is therefore clear, that as the elevation, aspect, climate, and soil of different farms vary, so also may we expect some modification in the time of sowing. For these reasons, should a crop of swedes be required for general use up to the middle of winter, we should endeavour to get them sown so as to come to perfection before the season of vegetable growth ends. If the conditions of growth are favourable, then we may find the first week of June will be quite early enough, and often rather too early. Should the crop be required for use later in the winter, or in the early spring, we must not allow the roots to grow so large, for a small size swede will almost always be found to keep later than a full-size root, and to aid in accomplishing this result, the crop should be sown somewhat later. It is often very desirable in the spring to have a supply of fresh juicy roots for the ewes and lambs, as their food causes the milk to spring more freely than almost any other food which the fields offer at this time of the year. Turnips sown for this purpose are, in comparison with swedes, very much to be preferred, provided they are in good juicy condition, and for this use the turnips may be sown in July and August, according to the district. These are the chief respects in which the time of sowing controls the character of the crop.

The early stage of the plant's growth is the most critical part of its existence, as it is especially subject to the attacks of the small turnip beetle, or, as it is more commonly called, the turnip fly. These insects consume the young and smooth seed-leaves before the plant has time to throw out its rough leaves, and the young plant deprived of these organs of respiration quickly perishes. In this manner thousands of acres are annually destroyed by this small and apparently insignificant insect. The great safety of the crop when thus attacked lies in its rapidity of growth, which in favourable weather, and on land in condition, survives the attack, and really grows more quickly than these beetles can consume the crop. This rapidity of growth is very much accelerated by a judicious use of manure, and under this valuable agency this crop is almost rendered certain. The condition of the land when the crop is sown is also very influential upon the stability of the crop, as well as its ultimate success. It is a point which is often disregarded, but experience has proved it to be important. The dryness of the soil is the especial feature now referred to. It is a general idea that a moderate degree of moisture is desirable when the seed is sown, and this is a point worthy of more attention. It is the *degree* of moisture which determines whether it is useful or injurious. We all know that during the season for sowing turnips we are subject to intervals of dry weather, during which the fly often plays sad havoc. Suppose, for example, a field has been reduced into a good tilth, and has just enough moisture to enable the seed to sprout. It sends forth its pair of tender seed-leaves into the air, and its little rootlets pierce into the soil in search of moisture, but none can it find, for the soil has only enough to quicken it into a dangerous existence, and cannot supply the roots with the moisture they seek. The weather continues dry and parching, and hour after hour the farmer's anxious eye watches the battle waging above ground, for the turnip beetles devour the leaves, and with doubtful mind he rests his hope of saving the crop upon the prospect of rain. In such a case it is evident that a small amount of moisture in the soil when followed by dry weather is dangerous; for if the seed were sown in a *dry seed bed*, there it remains until rain falls, which is almost always enough at this time of the year, when it does come, not only to sprout the seed, but to carry it into rough leaf, and render it safe. Another very important help towards securing the crop is a liberal use of seed; for whilst the additional cost of 1s. or 1s. 6d. per acre is nothing compared with the amount risked, yet it is a valuable adjunct to other measures. It is equally necessary to be confident as to the quality of the seed sown, and for this purpose some seed must be previously grown, for no ordinary person can detect the difference by the eye after the old seed has been prepared for sale, as is too frequently done. A trial of the growth is at once a test, and as it gives but little trouble, should never be neglected.

We are now brought to that point which requires some notice of the manures to be used for turnips, and the best mode of using them. In accordance with our invariable rule we shall endeavour to do so, without in any way recommending any manufacturer more than another, or refer in any degree to private and commercial interests. The first manure which claims our notice is that which we produce at home, or in other words, farm-yard manure. The better the quality of such manure, and the greater the judgment which may have been shown in its care and management, the less will be the quantity which need be applied to the land. The soil will also influence the farmer in respect to the quantity per acre. However great the care and discretion shown, it seldom happens that the farm-yard dung holds out for the entire breadth of turnips, and consequently we always use it where it is most needed; and for this reason the swedes generally have the preference for being a firmer and more nutritious root. They require more nourishment, and for this purpose farm-yard dung is of very great value. But whereas the manure from the farm-yard does not prove sufficient for the whole of the land, some other supplemental manure has to be procured for the remainder. Now manures are of two classes—those which act as food, and those which *also* enable other matter to be taken up as food. In farm-yard manure, which is a very compound substance, we have both of these classes present, and in our imitation we should also introduce both. For this reason we need the assistance of guano, or some ammoniacal manure of the same class, and by the addition of bone-earth or super-phosphate of lime we supply all that the crop requires for its healthy growth. It is therefore desirable to use these or similar manures for making-up any deficiency which may be found to exist in the supply of yard-manure.

The disposal of the farm-yard manure admits of another suggestion; for it is worthy of enquiry, whether or not it is desirable to use all the manure from the yard by itself, and all the artificials by themselves, or in what form they should be used. For example, 50 acres of turnips are to be sown, and there is only sufficient manure for 30 acres, and the residue has to be manured by purchased substitutes. Would it, or would it not, be better to have a more general distribution of both natural and artificial manure? Without now going into any explanation of the reason why, it may be sufficient to state that practical evidence invariably supports the use of the manures mixed, in preference to either alone; but still the swedes should have the largest share of the dung. When *good* farm-yard manure is freely employed the necessity for guano is very much decreased, because the former has already added to the soil the necessary ammoniacal manure; not that the guano is unnecessary, but less urgently required. With the superphosphate of lime the case is quite different, for yard-manure is generally deficient in this particular, and a moment's consideration will make this manifest. Much of the value of the manure depends upon the excrement of the animals kept on the farm, nearly all of which rob their food very completely of the bony matters therein contained to strengthen their skeletons: there is therefore but a small proportion remaining in the dung; so that, although the use of dung on a field lessens the need for guano, it does not decrease the demand for superphosphate of lime, but, on the other hand, actually increases it. This may at first sight appear to be inconsistent and contradictory, but it will bear looking into. One of the uses of the bony matter of manure is to enter into vegetable growth again, and give strength to our crops. A crop of 20 tons of swedes *must need more* than another crop of 15 tons; and if both are fully developed, the former will have drawn more from the soil; hence, if we are giving dung to a field to produce 20 tons, we ought to give our bone-manure with an equally liberal hand.

It is a subject of frequent inquiry with farmers—Shall I buy guano or superphosphate for my turnips? This is partly answered above, but a few remarks may make their relative value to be better understood. The first point is to remove from the mind the very common notion that they can each do the same work. True they can each encourage the growth of the crop; but this is a combined result, in which one manure takes one part, and the other manure a different one. The value of the bone-manure or superphosphate of lime is, to supply materials which the crop needs, but which are present in the soil only in small proportions. Guano supplies other materials equally necessary, but which are more abundant in the dung from our farm-yards. If there is enough dung for the land there is less need for guano; or if the dung is short in quantity its place may be supplied by the use of guano. These manures are therefore to a great extent substitutes for each other; but for the successful growth of turnips, both need the addition of superphosphate. The answer to the above inquiry is therefore simple. If the land is poor, and no dung available for it, give it guano or some similar ammoniacal manure; but if the field is in good condition there will be less need for it; but in either case the use of the superphosphate will be beneficial. Another circumstance which influences the use of farm-yard manure or its substitute is, the distance of carriage, for it is manifest that economy will allot the most portable manure for the more distant land.

It may, however, be right, whilst noticing the manures used for turnip crops, to refer to the use of bones, which are so extensively employed in some parts of the country. The great advantage claimed for the superphosphate of lime, which is prepared from bone-earth, is the fact of being more readily dissolved in water than the bone. This naturally induces prompt and vigorous action on the part of the superphosphate, whilst the bone acts slowly. The practice of different districts shows the use of bone, in preference to superphosphate, to be chiefly confined to the sandy soils; for here, in consequence of being so readily washed by rain, the soluble superphosphate is soon lost, whilst, as the bone decays slowly, it is valuable for several successive crops. The addition of a small quantity of superphosphate of lime has been found useful in giving nourishment to the young crop until the bone-earth has come into service.

We cannot, however, leave this subject without referring to the well-known fact that there is at the present time a vast amount of trickery and deception practised by some unprincipled dealers in the manure trade, and that the adulterations are carried out to an incredible extent, far beyond what purchasers generally imagine, and that these fraudulent practices are carried out with great skill and ingenuity. Those who have most to do with the examination of such manures have the fullest possible proof of the enormity of the evil. It was only on May 17th that we reported in the *Mark Lane Express* the communications received by the Council of the Royal Agricultural Society, from Dr. Voelcker, in which he brought under their notice spurious guanos, worth 63s. and 80s. per ton, selling as best Peruvian, probably from £12 to £14 per ton, according as the dealers wished to throw a tempting bait, or to stand out for the price of the genuine article. We refer our readers to this communication again because of its great importance. It is hard enough for farmers to have to pay such heavy prices for their guano; but after this sacrifice, to find that the purchased article will scarcely pay the expenses of carriage, this is indeed a severe aggravation of the evil. There is a remedy, and if not used we have only ourselves to thank. Send a sample for examination before you purchase; this will cost 5s.; send another sample of the manure received—and this will cost another 5s.—and you will then know what you purchase and what you receive, and thereby you will protect yourselves against fraud and imposition. It is a serious evil to the agricultural community, but it only needs a simultaneous action throughout the country. Amongst the manure merchants there are numbers of honourable men, who not only do not shrink from the examination, but are desirous for it, because they will then be recognised as they merit; and as to the others, the sooner they are known the better for the agricultural public.

ROYAL AGRICULTURAL SOCIETY OF ENGLAND.

MEETING AT CHESTER.

TRIAL OF THE STEAM CULTIVATORS.

The Society having determined to give a more lengthened as well as thorough trial to these important pieces of machinery, orders were issued to its Judges to be at their post several days earlier than on any previous occasion. Accordingly, under the directorship of the indefatigable Mr. Brandreth Gibbs, and the gentlemanly and business-like stewardship of Sir Archibald Macdonald, the four gentlemen selected as representatives of the mechanical knowledge and practical experience of the agriculturists of England—namely, Professor Wilson (of Edinburgh), Mr. Shackel (of Reading), Mr. Druce (of Ensham), and Mr. John Clarke (of Long Sutton), assisted by Mr. Amos (the Society's Consulting Engineer), by Mr. Appold, and other amateur men of wisdom among wheels—began their difficult and responsible labours on Tuesday last. Of course, considerable time was taken up in measuring and laying out the work, and in getting the various unwieldy or strange-looking machines to the scene of their performances.

The first trial-field was a piece of seeds of about ten acres in extent, on the farm of Mr. Nicholls, of Chester, and situated about a mile and a half north of the show-yard. Though pretty level as respects the general slope, the surface lay in ridge-and-furrow "lands" of about 13 feet width; and there was a long and shaggy sward of rough grass, coltsfoot, couch, and thistles, rendering smooth, clean, neatly-tucked ploughing impossible without a well-set skim coulter. Divided into five equal plots, No. 1 fell to the lot of Mr. Burrell, for his Boydell traction engine; No. 2 to Messrs. Howard, for their Smith's Woolston apparatus; No. 3 to Mr. Rickett, of Buckingham, for his locomotive rotary digger; No. 4 to Mr. Fowler, for working the ploughs of Mr. Crawley, of Newport Pagnell; and No. 5 to Mr. Fowler, for his own steam plough. On Tuesday these were the only four inventions actually competing, though Messrs. Tuxford's traction engine made its entry into the trial-yard, and there are reported to be no less than twelve exhibitors either of machines or models for steam tillage.

Without attempting a general description of the different working parts of the four schemes (which, very fortunately, represent as many distinct principles—the locomotive traction engine, the locomotive engine driving a revolving tiller, and two systems of wire-rope traction), we may refer to those really new, and to improvements in the machines already noticed in detail last year.

The main alterations observable in Burrell's traction engine are, the gear-work for driving both carriage-wheels, instead of only one; the new pinion and toothed quadrant steerage, instead of the old ship's rudder-chains and pole; and pieces to be attached to the shoes, to guide them and give them a better hold on the ground. There is also an additional force-pump, and an extra lifting-pump, with 30 feet of India-rubber suction-hose, for supplying the tender with water from roadside streams or field-ditches. The price is £800, or £750 without these extra pumps. In travelling from the yard, a *détour* had to be made up a hill, in order to avoid passing over a rather tender canal-drawbridge; and, this slope of 1 in 10 being paved with cobbles, the "shoes" or rail-pieces slipped, causing a considerable delay; and a slight accident occurred, as the large tank, full of water, being drawn uphill, broke away from the engine, and, running down, upset a horse and cart. However, the ascent was finally made; and the engine, with its tank and Mr. Williams' frame of six ploughs, proceeded to a field, for private trial by the exhibitor, before being brought into contest in the Society's arena.

The apparatus invented by Mr. Smith, of Woolston, consists of an eight-horse portable engine, with double cylinders, manufactured by Clayton, Shuttleworth, and Co.; a windlass of remarkably simple construction, made by Messrs. Humphries, of Pershore; and anchors, pulleys, wire-ropes, and implements, turned out by Messrs. Howard. The three-tined and five-tined implements are well known, and also the mode of hauling them by wire-ropes laid around the compartment to be cultivated, and turning the implements at each end. A ridging plough with two mouldboards is now employed, and turned round at the ends in the same manner. The anchors consist of iron frames, each having a couple of strong curved tines, which are drawn into the ground by the strain of the pulleys hooked to them. The windlass has two drums, with horizontal axes, hung side by side, on separate bearings, in a strong timber frame about 8 feet long by 5 feet wide, mounted on four travelling wheels. To prevent its moving from its place, a chain connects it with the engine. A double-toothed pinion on a transverse shaft, driven by a rigger and strap from the engine fly-wheel, gears alternately with teeth on the flanges of either drum, being shifted along the shaft for this purpose by a small lever; a break is pressed by a weight against the side of each drum alternately; and this is all the machinery there is about it. In working, when the implement arrives at the headland, the steam is shut off; then the pinion can be shifted sideways, out of gear with the drum which has been winding up the rope; and when the other drum, which has been paying out rope, stops, the pinion is slipped into gear with it; and it is found that there is no tendency of the teeth to catch and break, for the cogs on the pinion and drum cannot catch each other unless both are going the same pace, and then, of course, there is no danger of fracture.

Mr. Fowler's machinery has been greatly improved since the Salisbury meeting. One of Ransomes and Sims' ten-horse double-cylinder portable engines is adapted for temporary attachment to a windlass, which, when the fore-carriage is removed, incloses the engine as in a pair of shafts. This windlass, manufactured for Mr. Fowler by Robert Stephenson, of Newcastle, is a beautiful piece of machinery, the framework being of light yet sufficiently strong plate-iron, and the adjustments for attaching to the engine, etc., being of the simplest and neatest character. It carries two drums, on vertical axes, each of 4 feet diameter, with four grooves on their peripheries; and round these the wire-rope is led, and, being pressed against the drums by four small spring-rollers, the rope does not slip. Thus an endless rope is employed, instead of the two ropes heretofore wound and unwound; the great damage done by crushing the rope upon itself, the irregular progressive motion of the implement, and the labour of the man required to regulate the coiling on the drum, being escaped altogether. The drums are actuated by spur-wheels, mitre-wheels, with a clutch for reversing the direction of rotation of the drums, and a rigger and band from the engine fly-wheel. The gradual creeping of the engine and windlass along the headland is effected by a separate small barrel and chain from an anchor fixed a-head, driven by a belt from a small rigger on the other end of the engine crank-shaft. It should be noticed that the hinder wheels of the engine are on a rocking-bar axletree, to adapt the four wheels, of the engine and windlass together, to uneven ground; and the axletree of the two windlass carriage-wheels can be "locked" when required for steerage. The rope going down the field, round an anchored pulley on the headland, and back again to the windlass—or rather two lengths of rope—meet at the plough, on which portions are wound on small barrels, so as to be taken up or let out according to the varying length of furrows required; and the rope is divided into lengths, joined by eyes and links, for enabling an endless rope to be made for any sized field.

The experimental investigations having been first instituted with this apparatus, we will now describe them before proceeding to the other inventions.

To draw the whole up to the field were required—4 horses with the engine and tank, 2 horses with the windlass, 1 with the anchorage, and 1 with the plough. The windlass was connected with the engine in 17 minutes; but less time would have sufficed, had it been in order, as on a farm, and not just off the railway trucks. Leading out the ropes with a horse took 20 minutes more, or 37 minutes; to which must be added several minutes more in setting down the anchorage; and then filling the boiler and getting up steam occupied more than an hour, before all was ready for work. The ploughing could not be proceeded with on Tuesday evening, owing to the engine-pump being out of order; and so Mr. Fowler was given until 8 o'clock on Wednesday to get all in going gear.

Accordingly 2 cwt. of coal was served out, steam being at 60lbs. pressure, and work began at 8. 52 o'clock. The following is a table of observations taken:

Size of furrow.	Time occupied by "down" journey towards the anchorage.	Time at the end.	Time of "up" journey towards the engine.	Time at the end.	Stoppages.	Remarks.
	Mins.	Mins.	Mins.	Mins.	Mins.	
10 × 5 in.	3¼	1	4¾	0¼	—	Began at 60lbs. pressure.
	4¼	1	4	0¾	—	4'lbs. pressure.
19 × 6 in.	4½	1¼	4	0½	—	56lbs.
	4½	0½	4¼	1	0½	Stoppage on "up" journey.
Work done in eleven bouts and a piece.	5	0½	4¾	0¼	3¼	Altering plough
	4¼	1	4	0½	5¼	Strap broke.
	3½	1	3½	1	—	60lbs. pressure.
	4	0½	3¼	1¼	—	
	3¾	0½	4	0¾	—	
	4¼	0¾	3½	1¼	—	
	3¾	0½	3½	1¼	0½	On "down" journey.
	1¾	—	—	—	—	Half a journey, to make up area of plot.
	46¾	8½	44	8¾	10	
Average.	4 1-11th	¾	4	¾	¾	

"Going, 90¾; "at ends, 17¼; stoppages, 10; = 118 minutes, or 1 hour 58 minutes total time.

In the last bout but one, an "eye" of the wire-rope broke, and 22 minutes were lost; but this being a casualty extremely unlikely to occur in every two hours' work, is omitted, and only ordinary stoppages included in the time run. The ground measured 1 acre 2 roods and 13½ perches; and this, for the time occupied (that is nearly two hours), is equivalent to eight acres and twenty perches in a day of ten hours. The weight of coal consumed was found to be 195 lbs.; the pressure of steam being the same at the conclusion as at the beginning of the experiment. This is equivalent to 100 lbs. of coal per hour, or nearly 9 cwt. in a day. The labour employed was that of two men and two boys, and a man and horse fetching water. The wear and tear and interest on £650 (the cost of the engine and machinery), for 180 days' work in a year, the engine itself being used besides for thrashing, &c., is taken at 1s. 6d. per acre. Suppose the average size of fields to be 16 acres, or the area of two days' work, and that a quarter of a day is sufficient for the removal of the apparatus from one field to another, there will thus be 5½ days' work and half-a day's shifting in a week. And each removal takes four horses and two extra men. The expences for a week, therefore, stand thus:

Engine-man	24s.
Ploughman.............	18
Two Boys	12
Horses and men..........	8
Coal and oil	66
Water...................	30
Wear and tear and interest.	72
Acres, 44	230s.

5s. 2½d. per acre.

What would be the cost of ploughing the same extent of land per day by horses? In order to arrive at a satisfactory estimate of this point, the judges ploughed some furrows alongside of Mr. Fowler's work, with one of Messrs. Howard's PP 3 iron ploughs, drawn by a pair of horses. The dynamometer, we observed, pointed to an average draught of about 4 cwt. for the best plough that could be used; or, in other words, the work of turning over a furrow 10 inches wide by 6 deep (similar to those of the steam-plough) was fair two-horse labour for an acre a-day. Sixteen horses at 3s. each, and eight men at 2s. each, would thus plough the eight acres per day at an expense of 8s. an acre. By rule of three, then, we find that 8 : 5¼ : : 100 : 65; showing a saving of 38 per cent. in favour of the steam-plough. We cannot stay, at present, to point out the merits of the work performed; but considering the roughness of the ground, it was certainly well done. In ploughing clean land for wheat-seeding, it is evident that the slices would be more neatly laid; and on clover-lea, without ridges and furrows, the work would be beautifully done by adding skim-coulters. But the economy is remarkable, particularly for land that is to be further prepared by the scuffler.

In the heavy-land field on the farm of Mr. Cooper, at Blacon (two miles north of the Show-yard), during the trial of Thursday, we timed four bouts of this plough as follows:

"Down journey."	At end.	"Up journey."	At end.	Stoppage
Minutes.	Minutes.	Minutes.	Minutes.	Minutes.
4	0½	3	0½	—
3	0¾	3	0¾	1½
2½	1¼	2½	1	—
2¾	0½	3	0¾	—
4) 12¼	3	11½	3	1½
3	0¾	2¾	0¾	—

"Going," 23¾; "at end," 6; "stoppages," 1½; = 31¼ minutes; doing eight journeys of 200 yards each. The engine working at 55 to 60 lbs. pressure, we calculated from the measure of the cylinders and number of strokes per minute, to be giving off about 18 horse-power effective. In one hour, the area of land ploughed was just 3 roods, or at the rate of 7½ acres a-day. The expense, with one man extra to hold the plough, in this extraordinarily and disgracefully rough field, can scarcely be put at more than 37s., the cost per acre being thus only 5s. 3½d. A plough tried alongside showed 6¼ cwt. draught, or 3-horse labour; so that ploughing by horses would cost, at a moderate estimate, 11s. In heavy land, or deep work requiring great traction-power, it is pretty clear that this machinery saves *one-half* the expense incurred by horses—that is without reckoning up great casualties which are perhaps liable to occur at times with steam-machinery, as well as with animals having shoulders and fetlocks.

Mr. Howard's apparatus did some excellent work with the three-tiner, and also with the trench-and-subsoil implement in the light-land field on Wednesday, the grassy surface being kept on the top by the first implement ready for the after-extraction or killing of the couch and rubbish; and the loamy soil "raftered" into drills or ridges with the bottoms of the open furrows broken up by subsoiling tines, by the action of the other implements. On Thursday, in the heavy-land field, with a stiffer soil, and also many small stones, the three-tine cultivator was worked with excellent effect, breaking up the hard ground into pieces ready to be crossed and still further reduced by a broader scuffler. Owing to the pieces not being turned over, the work appears to the eye almost as green as the whole sward; but still every portion is cut or torn from the bottom, and much of the ground set up in an angular position, offering a rough surface for the operation of drag or harrow.

The plot was about 170 yards by 112, the work being done across the short way; the rope, laid out all round, being at first some 560 yards length, running at once. Eight cwt. of Lancashire coal being served out, steam was got up in 43 minutes, and the machine started an hour before Fowler's plough, owing to the engine-man of the latter having neglected his tubes and snake-box, so that a great delay occurred in getting-up steam.

The observations we made are as follows:—

Time occupied in "down" journey.	At end.	"Up" journey.	At end.	Stoppage.
Minutes.	Minutes.	Minutes.	Minutes.	Minutes.
1½	½	1¼	¼	—
1½	¼	1½	¼	—
1¾	½	1½	¾	1
1½	¼	2	¾	—
1¾	¼	1¾	¼	—
1½	½	1½	¼	—
1¾	½	1½	¼	—
1¾	¼	1¾	¼	2¼
1½	½	1¾	½	—
1¾	¼	1¾	¼	2¼
1½	¼	1½	¼	—
1¾	½	1½	¼	—
19½	4½	19¼	4¼	5½
Average about } 1½	¼	1½	¼	—

The total time of the observation was 53 minutes—that is, 38¾ going, 8¾ turning at the ends, and 5½ lost in altering the implement, &c.

The work being done the short way of the plot, the journey was only about 110 yards, the pace travelled being 2½ miles an hour; had the plot been taken lengthwise a much less proportion of the time would have been occupied by the turning. The area cultivated in this 53 minutes was equivalent to 2 roods 38 perches per hour—or say 7¼ acres per day. The expenses (reckoning coal and oil at 12s.; water, 5s.; engineer, 4s.; four men and a boy, 11s.; removals, 4s.; wear and tear and interest on £430, 11s.) amounted to 47s.—or 6s. 7d. per acre. In order to form some idea of the heaviness of the labour being performed, six horses, pulling well together, were made to draw the three-tine implement alongside the work; and, though it had been supposed that more draught-power would be needed, the six horses (yoked three before three) walked along at a fair brisk pace, without fatigue or distress; in fact, it appeared to be good ordinary work for them. The dynamometer attached could only indicate up to 10 cwt., and consequently the draught, which was of course considerably higher, was not ascertained. To do as much work in a day, it would require two implements, twelve horses, two men, and two boys, the cost being about 6s. per acre. According to this comparison, there would seem to be no saving in the steam over the horse-power operation; but the fact is, that horses could not produce the same efficiency of result, seeing that the quicker pace travelled, and the freedom from trampling, cause the ground to be so much better torn up, and laid in a better posture for after-treatment.

On Friday Mr. Howard crossed his work with the 5-tined cultivator, taking 5 feet breadth, and so divided and uplifted the pieces left by the first process, and also broke up every portion that had escaped the other implement, that common ploughing and cross-ploughing and then dragging could not have left the ground in a better state. Adding the cost of this second operation, namely, some 3s. 6d. to 4s. per acre (the quantity being about 10 to 12 acres per day), to that of the first, we have about 10s. or 10s. 6d. as the expense of accomplishing tillage worth, on stubbles for cleaning, at least the price of two ploughings; and the advantage in the heavy spring tillage saved, and the fertilizing effect of early breaking-up, still far outweigh the comparative pecuniary estimate.

On the same day, also, Mr. Fowler worked his admirable trenching-plough, which took two furrows' breadth at a time, and went 12 inches deep, breaking up the amazingly hard subsoil, and laying it upon the sward-slice turned down. His common plough frame is fitted with cross-bars for carrying cultivator tines; but the first attempt to work them in this firm-baked soil was not successful. However, it is exceedingly desirable that scarifying or grubbing should be within the compass of the engine's ability, as well as turning over furrows. Indeed, it is precisely the beautiful adaptation of Howard's cultivating implement to this process of "smashing-up" without inversion, that has achieved for the Woolston system of tackle so large a measure of success.

Mr. Rickett's machine is a locomotive engine, with flue-and-tube boiler, propelling itself slowly by means of pinions, spurwheels, and cage-teeth on the inside of one of the broad-bellied travelling wheels; and at the same time driving with pitch-chains from pinions on each end of the engine crank-shaft a revolving digger hung transversely behind. This digger consists of a strong shaft of 2¼ inches square and about 7 feet long, on which are slided a number of curved arms carrying prongs or spade-shaped cutters or shares of chilled cast-iron. It is hung upon two radial arms, so as to be capable of being raised or depressed, and the short pieces of pitch-chain driving it at each end gear with pinions only 5 inches diameter, which are certainly too small. The circle described by the cutters is 2 feet in diameter, and the digger rotates in the opposite direction to that of the carriage-wheels, so that the blades enter the hard ground from below, carry over the loosened soil, and deposit the pieces mostly in an inverted position. The digger makes say about 60 revolutions per minute, while the engine advances 45 feet in the same time; and as there are two cutters in one ring (at opposite diameters), each cutter takes 4½ inches "bite." And shares of all varieties of form and breadth may be employed. Three men are required to work the machine. Going 5 inches and sometimes 7 or 8 inches deep, it made very fair work, good enough to show that on light land in dry weather it might be a valuable tool. The engine, a 10-horse power, worked up to 90 or 95lbs. pressure, and when choking did not occur (from the confined and defective construction of the machine), proceeded at the rate of nearly six acres a-day, at an estimated cost (including interest on £440) of about 6s. an acre. All readers of "Talpa's Chronicles of a Clay Farm" will appreciate this invention, although the revolution of the digger is in the opposite direction to that with which their imagination is familiar.

Mr. Crawley's set of three one-way ploughs, each consisting of two plough-bodies fixed heel to heel, for working up and down the field without turning at the ends, and yoked to a lever whippletree that of its own accord alters the succession in which the ploughs follow one another for the up and return journeys, were hauled a little way on Wednesday by Fowler's tackle, but could not be made to work properly. Each plough should have had a means of independent steerage; but as they tore their way sideways into the unploughed land, after proceeding a few yards with some large furrows, a bystander remarked that "they wanted ringing."

We have now given the facts of the steam-plough trials as far as we could ascertain them from our own observation; but doubtless the prolonged experiments of the judges in weighing coal and measuring the work done, besides the careful testing of the implement draughts with the dynamometer, expected to be carried out on Monday, will prove most valuable and interesting to the agricultural public, when the next "part" of the Society's journal comes out. We refrain from expressing an opinion upon the comparative merits of the two systems of applying steam-power to tillage, which appear to be, so far, the only likely competitors for the £500: both are "economical"—both make good work; and seeing that a baulk-plough is used, as well as mere grubbers, by the one which does not "plough," we suppose that both comply with the condition of "turning-over" the land. The judges have to give in their award on Tuesday night; and we have no hesitation in saying that they have taken far better and more satisfactory means for investigating the capabilities of these inventions than have ever been employed at previous meetings. Our readers may safely venture to Chester, without fear of a second Salisbury imposition.

But so long have we been dwelling upon this all-absorbing subject, that we are forgetting the equally exciting operations in the spacious trial-yard, where Messrs. Barker, Shackel, and Jno. Clark are trying the thrashing-machines; Messrs. Druce and Professor Wilson are examining the chaff-cutters, pulpers, mills, &c.; Messrs. Higgins and Wilshere are hunting out miscellaneous improvements; Messrs. Owen, Wood, C.E., and

Mark Fothergill, C.E., are testing the steam-engines; and Mr. Amos and his assistants are recording time and units of power evolved or consumed in all these manifold operations, by means of the brakes, springs, and clockwork of their dynamometers.

THRASHING MACHINES.

The thrashing-machines are being worked in a shed erected for the purpose; but so numerous are they, that the judges have been driven either to work each one a few minutes only—a time utterly insufficient for affording any criterion of merit—or else select machines for trial; and the latter course is the one they appear to be adopting. Twenty sheaves are allowed to any exhibitor requiring to adjust his machine beforehand, and it is then tried with 150 sheaves of wheat; of course very nice dry stuff.

If this performance be tolerably satisfactory, a further ordeal is instituted, with twenty sheaves of barley. The products are then inspected, and what is still better, are scrutinized by the test of dressing over again, the chaff being put through a new chaff-screener, invented by Howard, of Bedford, which separates pieces of cavings from the chaff, cleans out the dust, and extracts any corn that may be present, and the head corn tried upon Boby's infallible screen. We heard a spectator's opinion, that, "between Howard and Boby the machine-makers would have a deuce of a time of it!"—as was no doubt the case with many of them.

On Friday were tried the finishing-dressing combined thrashing machines of Heywood, Ransomes and Sims, Savory, Nalder, and Bobey and Scott, Ransome's appearing to give the best results.

Other machines were tested on Saturday, including that of Messrs. Fowler and M'Collin, Garrett, Clayton and Shuttleworth, Hornsby, &c.—Clayton's appearing to excel in most respects. It is understood that the hard-working judges in this department are paying strict attention to the state of the shaker and riddles when the trial is concluded; as many which answer admirably for a few minutes are not calculated to keep clear for several hours, particularly with a damp sample of stuff to thrash. In fact, the experiments are being conducted in pretty close conformity with the suggestions contained in a letter recently addressed to the Society's council and published in our columns by Mr. John Algernon Clarke. The trials of chaff-cutters, pulpers, &c., &c., are carried on by other judges, namely, Messrs. Druce, Hicken, and Professor Wilson; and the "miscellaneous" articles are sought out and examined by Messrs. King and Wilshire.

STEAM ENGINES.

The trials of portable 8-horse engines have given the following results, from Thursday up to Saturday night, when all were finished; the 12-horse engines coming on for Monday:

Brown and May's ..	ran	2	hours	35	minutes
Clayton and Shuttleworth's	,,	3	,,	2	,,
Clay's	,,	1	,,	28	,,
Foster's	,,	1	,,	35	,,
Fowler and McCoilin's ..	,,	1	,,	43	,,
Heywood's	,,	2	,,	—	,,
Hornsby and Son's ..	,,	2	,,	40	,,
Tuxford and Sons' ..	,,	3	,,	35	,,

By the time-test, then, Tuxford stands first, Clayton and Shuttleworth second, and Hornsby third—the three being Lincolnshire firms. With the fixed engines, Hornsby is first, Ransomes and Sims the second, and Ferrabee third.

THE SHOW WEEK AT CHESTER.

Notwithstanding one or two memorable Meetings held, years gone by, in this quarter, the Society broke comparatively fresh ground at Chester. Never were the visitors to the Show-yard so numerous, and never were there so many who had little or no previous experience of such a national celebration. This was a remarkable and encouraging feature in the history of the week; showing, as it did, there are yet districts where the lesson may be given with mutual advantage. What with an early harvest, and a still low range of prices, there was not so great a number of strangers—men coming from long distances—as usual. We missed, indeed, many whose names and faces have almost from the first been identified with these occasions. Their place, however, was well filled by others, who had no such round of recollections to fall back upon. The old member or habitué may have often felt himself alone here—jostled by an eager crowd of sight-seers, who hurried on, with that first of incentives to enjoyment and inquiry, the utter novelty of the scene and the proceedings.

Fortunately these were worthy of the support they received. It is still the old story, that the Society has never had such a thoroughly successful gathering, as that just now held in the quaint old city of Chester. It speaks in every way to the gradual advancement of the Institution. It was not merely one of the best Meetings so far as either the entries of Stock or Implements were concerned, but it was altogether one of the best conducted. We never remember one where there was so little to cavil at in the arrangements, or where the business passed off so pleasantly. All this, of course, is but the effect of experience profitably employed. Year by year there is more to do; but it is better done. We may honestly embody in one general compliment all the working-men of this busy time. Officers, stewards, and judges ably did their duty, while they must regard the unparalleled success of the Show as the most grateful return that can be made them.

Few, but those actually engaged in such a business, can imagine the life of a steward, a judge, or an exhibitor, for the eight or nine days he is thus employed. How he gets up with the earliest, and is too often to bed with the last. How he dines irregularly and hastily of cold meat, neatly spread-out on the tail-board of a waggon, or with a plate nicely balanced on the handle of a plough. How he works with the eyes of some of the keenest men of the day resolutely fixed on him—feeling that if he should make a mistake, all the world will very soon know it—and thinking it the height of good fortune if he can "pass" without being too much talked about. It is almost surprising how some can bear such periodical excitement; and no wonder, when an implement-maker, wiping his brow, declares "these meetings are wearing him out."

We speak here more especially with reference to the Implement Section of the Show, which has now come to the third year of the triennial experiment. Regarding this at first with some distrust, as, perhaps, but the means to another end, we are bound to record it as having worked most satisfactorily. The system has allowed of a certain method and testing-power never before arrived at, and which has progressively culminated to Chester. The trials, both in the yard and the field, were never so searching; and, as a rule, never were the prizes so fairly won. And the great interest of the occasion centered here. How long is it since the steam plough was laughed off the ground at the Shrewsbury Show? A sufficient time, at any rate, to permit of its being somewhat improved upon when it came to be tried again in the same neighbourhood. We have already entered so fully on the performances of the steam cultivators, that we shall not repeat our selves. The report, however, is wanting in one important point, for the solution of which the agricultural world has been long waiting. Is there a steam plough the Society can dare to recommend? And, if so, whose has the preference? But, provokingly enough, this is the only blank in our Prize Lists. The judges of steam-ploughs are not suffered to arrive themselves at the dignity of a decision. They can only offer their recommendation to the Council, who will consider this at their next meeting, early in August. The race from the first has been entirely between Fowler's plough and Smith's cultivator; and it is now said the judges will advise a moiety *only* of the five hundred pounds being paid to Mr. Fowler, and an extra medal of merit being given for the Woolston machine. As a specimen of good ploughing, whether economically or not, the former did all that was required of it. The working of Smith's grubber was not so thoroughly understood by those who had but little time to study its straight and cross action; but it is, unquestionably, a farmer's implement. It is, indeed, the only one the practical man has yet fairly taken to; and, on the very Wednesday we witnessed it at work in Cheshire, a number of his brother agriculturists and next-door neighbours were presenting Mr. Smith with a testimonial in favour of his invention, at Newport Pagnell, in Buckinghamshire. He has, however, to especially thank the Messrs. Howard, of Bedford, for the interest taken in his implement at Chester. Their entry and management of it has been most liberal minded, and useful in its results.

The steam-plough is in every way an "extraordinary" feature in the business of this anniversary. The third division of the implement prize-sheet should bring us, in due course—after having prepared the land and secured the crops—to getting them ready for market. We make another application here again to steam-power, but in a phase now familiar enough. Indeed one might, by this, engrave the Engine on a seal as the emblem of agriculture; or take for our motto, "Get up the steam," in place of "Speed the plough." Considering the original outlay, and the uses to which it can be turned, the purchase of a good steam-engine must always be a serious matter with the farmer. The Royal Agricultural Society has certainly done its best to assist him. The Carlisle award, still, may have taken the Council, as it did a majority of the public, somewhat by surprise. Many would have it, indeed, it was an achievement that wanted confirmation. Tuxford's engine had won from a lucky accident, or else by a means that could never be made applicable to every-day work. We question whether the active members of the Council ever took more interest than they felt over the decision of this prize at Chester. The trial is altogether unparalleled for the care with which it was entered on; and we believe the exhibitors generally admit the justice and true principle upon which the issue was arrived at. Our report has shown that the three firms distinguished at Carlisle occupied again precisely their former positions — Tuxford first, Clayton and Shuttleworth second, and Hornsby third. That is, Tuxfords' engine ran the longest; but it was found to be equally excellent on the other "points" of utility and construction, and the first prize of course awarded to it. We shall allow a contemporary — *The Times* — to speak to its especial merits: "The trials have been conducted with greater strictness than on any previous occasion; yet Tuxfords', Clayton's, and Hornsby's engines stand in the same relative position to each other as at Carlisle. On that occasion the unsurpassed performance of the prize engine was attributed to the great number of its tubes; but here we have an engine of precisely similar construction, only with about half as many tubes, again successful over all competitors. And this engine has not only proved the soundness of the principles on which it is built, but is remarkable for the extraordinary finish of the workmanship—not in polishing up, but in trueness of fitting, and the uniformly excellent and beautiful adjustment of the parts to each other. The peculiarity of Tuxford and Sons' engine consists in the cylinder being vertical, so as to avoid the usual wearing of horizontal ones; while the working parts are inclosed in an iron 'house' at one end of the boiler, and kept free from dust, and under lock and key when not in use. They had also a horizontal engine in the yard, and the Judges were offered whichever they chose for trial. The engines chiefly sent out by this firm have both flues and return-tubes—a somewhat more expensive construction, but giving the greatest durability, and freedom from liability to leakage or burning." For the twelve-horse portable engine, the Messrs. Hornsby improve upon their place in the eight-horse-power trial. But it would be affectation not to say that the decision of the Judges has given rise to endless discussion, if not more boldly expressed dissatisfaction. As a principle, we are ever loath to question what the Judges decide. In these times, they must have some known qualification for the appointment they take, while their opportunities for inspection, or rather, rigid examination, are of course infinitely superior to those of a mere spectator. The public, however, will never rest content until their reasons for this award are explained. In the matter of "duty," or run, the other Lincolnshire firms had again the best of it. The time-table is thus officially announced:—

Tuxford and Sons' . ran	2 hours 57 minutes.
Clayton and Shuttleworth's	2 hours 41 minutes.
Ransome and Sims' . . .	2 hours 29 minutes.
Hornsby and Sons' . . .	2 hours 25 minutes.

And Hornsby receives the first prize! It does not seem probable that a manufacturer would differ much in his plan of constructing either a twelve or eight-horse engine. But, under any circumstances, this case shows the necessity of an early report; and it is even said that Messrs. Clayton and Shuttleworth have asked, or are about to ask, for an official explanation of the Judges' decision. Still the working value of Hornsby's machinery is proverbial, and perhaps the more we investigate it the less may we question what the Judges have decreed.

Barrett, Exall, and Andrewes are declared to have the best fixed engine—a plan that at one time threatened to supersede the moveable, but that has latterly rather receded in practice. The Reading firm, however, did capital work with theirs. Ransome makes the best boiler for engines; and Boby's is indisputably the best screen for machines. It sounds almost strange that the thrashing-machine and the engine should not go together. But, in equal merit, it would appear they do not. The Tuxfords, for instance, have not yet taken a prize for a thrashing-machine; and the four selected for the great two-hours' trial on Wednesday were—Clayton and Shuttleworth, Hornsby, Humphries, and Ransome; their merits being pronounced as we have placed them. Clayton and Shuttleworth have, indeed, a very marked superiority here, while the trials were entered on with unusual energy by the Judges; an enumeration of points having been previously very nicely adjusted by them. The Messrs. Hornsby and Garrett are the next selected from, as with the engines, whole hosts of opponents. When we say there were not less than 105 engines entered, and 87 thrashing machines, it will be seen how good either must actually be, to take any place here. As Mr. Stratton said of his short-horns, the Ransomes and Garretts may say of their implements, "It must be pretty good stock to get any notice at all at such a meeting as this."

If the great majority of the visitors had the look of people who had seen heretofore but little of such sights, they were certainly not merely idle or uninterested spectators. The manufacturers have seldom had a better time of it. There was scarcely a man amongst them but who was "doing very well indeed." But there was a moral, too, in the way the company crowded round those entries which had this year received the stamp of approval from the Society. They bought engines, thrashing-machines, and even steam-ploughs. There were plenty of prizes for such smaller implements as chaff-cutters, mills, pulpers, and so on, and quite as many people to purchase them. The unrivalled Mr. Cornes must have had a busy time of it; and Richmond and Chandler, Samuelson, Garrett, and Ransome also drove a roaring trade. The public really meant business, and did in a day or two, what it would take their historian a week to go fairly through. We shall hereafter, however, "try" carefully through the different lines, and endeavour to do something like justice to a branch of home manufactures that has taken a very high rank amongst us. The great men of Manchester, we are assured, were much struck with the excellence of the workmanship, which now so generally characterizes the implements of agriculture.

As a whole, we must repeat, this section of the show has seldom, if ever, come to a more satisfactory conclusion than it has this year. The natural consequence of this is, then, that the triennial system will be renewed. Such certainly would read like a settled fact; but so far no one can say anything for certain. The Implement Committee, it is reported, will not meet to consider the subject before November; and in the interim the manufacturers are all at sea as to what is to come next. Of course such a delay is in every way injudicious and reprehensible. It was whispered the question would be asked at the general meeting on Friday, but this broke up in twenty minutes, after a merely formal sitting—thanks to the Mayor, the President, the Railways, and for the use of lands.

It was considerably "past one o'clock" before the Judges of stock had concluded their duties on the Wednesday. This of itself went some way to confirm the rumoured excellence and extent of the entry. When once the rush at the doors was conquered—and we never remember it so great—a very passing glance tended to assure one that any expectations of a great show would not be disappointed. Testing it by the combined strength of numbers and quality, it is the best exhibition of animals the Society has ever yet brought together. There was of course a weak place or two; but as a whole either established breeds or more local varieties seldom came out in greater force. It is a nice question, to begin with, whether there ever was ere this such a lot of Shorthorns—so many to be seen, and at the same tim so few of an inferior description. The proof of this is easily arrived at—some of the most famous of our exhibitors having had to be content with a mere commendation, or at best but a second place. This was the case with Colonel Towneley, whose Brother to Master Butterfly was only highly commended, while from no less than ten yearling heifers he reached no higher than next best. But then this was a most extraordinary class, both for merit and the many competing. There were thirty-three for the Judges to pick from, and their premier selection was generally allowed to be the best animal of the yard. She is one of Mr. Booth's famous sort, by his well-known prize bull Windsor. With that really graceful appearance that so generally distinguishes the Warlaby herd of cows, "The Queen of the Isles" is, for her age, wonderfully well developed, and very heavy fleshed. As a class, the aged cows rank only next to the heifers, and here again Mr. Booth has the first place with a broad, roomy, and altogether most handsome cow, that quite maintains the repute of her owner. The Judges thought so well of these cows, that they generally commended them, distinguishing Mr. Stratton by the second prize. Indeed, the Hinton stock never showed so well as it did here. When we consider the company he is in, Mr. Stratton's position is now clearly established as a breeder of first-class animals. In the cow classes, however, Mr. Douglas must on the whole be ranked as only second to Mr. Booth, from whom he *will* have his best blood. As the property of one man, his pair of three-year-old heifers have never been excelled; although the Gold Medal and Challenge Cup heifer of the last Dublin show (Venus de Medici) was only the commended here, and her companion, Queen of Trumps, the first prize. But if we recollect aright, the positions of the two have more than once, before this, been reversed. Another of Mr. Douglas' cows, in the all-aged entry, yet holds the challenge cup of the Irish national society. In short, there never were so many excellent animals to be found on the same ground, almost any one of which might have fairly been expected to win.

The Shorthorn bulls, if not quite equal to the cows, still studded the catalogue with renowned names and pedigrees. The best bull was undoubtedly the best bred one in his class, coming direct from the Bates' blood, as preserved by the late Lord Ducie. But he was yet quite a contradiction to look at. Of immense size certainly, but very coarse in appearance, with a plain head, a drooping horn, and big joints, the Duke of Oxford owes his success almost entirely to his quality. This was pronounced to be wonderfully fine. Seldom was there a beast that handled so well, and this of itself proved his high descent. He is not, however, an animal to please the eye; while his dam, we believe, had the same ugly straight horn and mean head. This bull was bought when a calf at the great Tortworth sale, by Lord Feversham, for three hundred guineas, and his lordship has no cause to complain of the price. Amongst the other especially good animals in this class were Sir Charles Tempest's Napoleon, Mr. Wetherell's Statesman, and Mr. Fawkes' Sir Edmund Lyons, the first prize yearling at Salisbury. The latter showed to considerable disadvantage here, not being half the age of the prize bull. Lord Hill's two-year-old is a good useful animal, but scarcely of a first-class character; while the second, the prize calf at Salisbury, "The Great Mogul," did not come up to the expectations he then raised. The commended bull, belonging to Mr. Fawkes, saving just for a defect or so, might have had the best of it; but the class positively abounded in good ones. It was a nice point, again, as to which was the best calf, Bon Garçon or Comet, though the prize-list will show how good they either were. Royal Butterfly, thought to be sure to win, was third to them; and five others commended.

The Shorthorn honours did not even end here. Say or fancy what some people will, the Judges stamped their excellence for dairy, as well as for feeding, purposes. Of the twelve prizes offered by the local committee for cattle best adapted for the dairy, eleven were awarded to Shorthorns, a third premium only being given to some cross-bred cows. In short, the Chester Meeting makes the sort fit for anything, at the same time an amusing anecdote is told of the manner in which they may be prepared. A Steward of the yard encountered a man bringing in four cows, evidently of one herd, although vastly different in appearance. Two were well-rounded, plump, comely heifers; the others prominent in rib and hip-bone, and anything but over-fed. "How is this?" asked the authority; "what do you mean by fattening one pair and starving the other?" "Well, sir, you see," answered the herdsman, with a grin, "these two be for *breeding*, and them there thin cows for *milking*—you understand?" As he did at once, no doubt.

It is not very long since that the other established breeds suffered terribly from comparison with the Durhams, at least in the numerical force of the entries. The taste for the Hereford, however, is rapidly reviving; and, after doing better and better for some time, their admirers have reached a very admirable show of them at Chester. The cows in this instance had also as a rule the preference, and nothing could look sweeter or prettier than their white faces, ruddy coats, and fine frames. Mr. Price, Mr. Hill, Lord Berwick, and Lord Bateman, still, sent some grand, highly bred bulls, amongst which we cannot help fancying that of the latter noble lord might have taken a higher rank had it not been for the monstrous state of fatness to which he has been brought. We should almost hope he was passed over on this account. He was the first prize bull at the recent West of England Meeting; and really, for compactness of form, size, and quality, is very nearly perfect. The Hereford is becoming more and more worthy of his Herd Book, of which, by the way, Mr. Duckham has just issued his third volume.

A sense of justice will soon make it a question whether the Devons will not have to merge into "the other classes." There were, as usual, very few, if not yet fewer, of them than heretofore, at Chester. But the test of a Devon is more quality than quantity, and Mr. Quartley's cows and Mr. Pope's heifers were very pictures of useful beauty. In this Heifer Class there were just three entered, Mr. Pope taking the first and second premiums, and Mr. Davy receiving a high commendation; so that the Prize Sheet reads far better than the Catalogue. Mr. Pope appears to have got hold of a rare sort of his own, while other exhibitors out of the county generally go to it pretty directly for their material. In the other established breeds to which the Devons stand in ominous proximity, Lord Southesk's Polled Angus had a long lead. His prize bull was a grand, lengthy, even beast, and altogether of quite a majestic appearance. But the Welsh cattle stood in the greatest prominence here; and it is only a national meeting like this that can demonstrate how far they may be actually improved. Colonel Pennant's stock are very different to the "runts" we are accustomed to—good even as they are—and it is very evident that, with a little more care, the black cattle of North Wales may become a favourite breed. At present, it is said, the farmers take little or no pains with them. The landlords, however, are setting them an excellent example; and something must come of it.

The Sheep-show was the weakest division of the Stock Classes. The Leicesters, still declining, were very inferior, although Mr. Paulett came to the rescue with some good rams. But where was Mr. Sanday? Neither judge nor steward, the class could certainly not afford his absence. Then Mr. Jonas Webb does not show Downs; and Mr. Sainsbury does not show Downs, and Mr. Overman does not show Downs—*ergo*, the Southdowns were not numerically what they had been. Thanks, however, to the Duke of Richmond and Mr. Rigden, we had some beautiful finely-bred sheep to look at; and as the judges went all for quality, the honours were divided between them, Mr. Rigden taking the better half. Lord Walsingham has had some recent mishaps with his flock, and one ram was shown with a bad cut across the eye, a better having been left at home. Useful sheep, as his lordship's are, it would have been a difficult thing to alter the Chester edict.

If some of the best men amongst the Leicesters and Downs did not exhibit, the great breeders of the Cotswolds did. The consequence was that the pick of the fair was to be found here. We were assured, indeed, at Cardiff that the comparatively inferior exhibition of Cotswolds in South Wales would be considerably amended in the North. And so it was. The Lanes, Hewers, and Garnes had evidently been reserving themselves, and a better show of Cotswolds has rarely been known. They stood out in strong pre-eminence to the other sorts; and Mr. Hewer's pen of ewes was deservedly one of "the sights" of the show—such beautiful heads, grand forms, wide chests, and fine fleeces. Beyond this, the French *savans* say that the Cotswold is the very best eating; and so really, Mr. Webb and Mr. Sanday, you had better make haste back again, or we shall have these Wiltshire people going yet more to the fore. Mr. Beale Browne, in such company, could get no higher than a commendation; and the thousand-pounds challenge—accepted by Mr. Hewer—has ended in a forfeit. Mr. Browne paid five hundred to be "off" on Saturday last—a most discreet proceeding. Shropshire and West-country Downs stood deservedly high amongst other kinds; and Mountain Sheep, both Welsh and Scotch, formed another appropriate feature in the local character of the Show.

One of the "extraordinary" facts of the meeting—we use the Judges' own words—was the exhibition of small Pigs. All were generally good, but the small sows especially were remarkable for the number of good ones amongst them. It is said eight were "called out" for the first prize, and no less than ten were altogether distinguished either by prizes, "special" or high commendations. Colonel Towneley faired better here than with the Short-horns, as he took the local as well as the Society's premium with the same sow. And here it must be said that many an animal contended for both classes of premiums, and often with success. This caused some little confusion to the spectator, as well as it will to the reader, but we have endeavoured to identify every animal as closely as possible—either by name, breed, or colour. With the pigs the latter ran all for white. With the sole exception of one or two Berkshires, none of the darker shades were in fashion. Amongst the larger kinds, there were one or two animals of immense size and weight, apparently so helplessly fat, that their value for "use" would seem like an absurdity.

The horses, again, were entered in all sorts of ways; and the best of one division was often enough the second for another. Or, a winner in the national did not contend for the local prize, which of course went to something beneath him. There was altogether a very large display of agricultural and dray horses, with some capital specimens amongst them; but, like most horse shows, it was a very uneven one. The call went chiefly for Suffolks and Clydesdales, notwithstanding there were comparatively but few on the ground. This is the more creditable, as neither of the judges were Scotch nor eastern counties men. Mr. Badham's Suffolk has now corrected the Bury oversight, the only time he was ever beaten. His other performances are very good. At three years old he took the first prize of his class, and the second amongst the aged horses at Ipswich, where there was one of the best lots of Suffolks we ever saw. At four years old, that is during this summer, he won the All England prize at Chelmsford on a Wednesday, and a similar one at Norwich on the Friday following. Often as we have met "Emperor," 'ere this, we never saw him look so well as at Chester. He appeared, as it were, to feel his own triumph, and to display himself to the best advantage. He is certainly a very handsome horse—a beautifully topped one, with a good head, rare neck and crest, plenty of middle piece, and better behind in the thighs and gaskins than many of them are. His weak points are that he is a little light below the knee, has a small but still good foot, and is perhaps a trifle confined in the shoulder. Then, Mr. Crisp well supported him with another Suffolk Emperor—*not* Ploughboy, as printed in the catalogue—who took not only the first prize of the Society, but with it the local one, so that Shropshire and Cheshire will have a good opportunity of fairly trying the breed when Emperor "number two" comes on his travels amongst them next year. Another commended Suffolk, Mr. Wilson's Salisbury horse, was sold on the ground, to go to Australia, whither he is bound with two or three more of his countrymen. Those at Chester have of course often met before at home meetings, and with varied success, but their ups and downs are scarcely worth tracing here. The second prizes in these two classes went to a good-looking black Leicester horse, and to a two-year-old by that great horse, England's Glory. The young one is quite worthy of him. Then the Clydes had a turn, and the mares began with one of the most perfect ever sent into a Show-yard. She was better *all over* than the North Country nags generally, and was really as splendid a cart mare as need be asked for. If she had a fault, it was being a little too long in the pastern for heavy work—rather a sign of speed than strength. Then his Grace the Duke of Marlborough put to demonstration the difference between a dray-horse and one for agricultural purposes. Glengarry, at the first glance, was a magnificent animal, standing over seventeen hands and a half high, of a very showy colour, and with many catching points. Only adorn him with well-embossed harness, so as to hide his quarters and thighs, and he was quite a lion to "walk up" and see.

Still the Society's best horse for farmers, or best horse for draymen, did not find the best draught-horse on the Roodee. The local committee offered their premium also, open without any restriction to all comers; and this attracted, amongst others, two senior wranglers of other years. One was the grey horse "Matchless," who was first at Salisbury last year, and easily identified by his long flowing mane. He looks better out than in, and is anything but improved since last season. The other was the Leicester bred horse "Nonpareil," still better known at the Society's meetings. He was the best two-year-old at Windsor, second in his class at Lincoln, and the best horse at Carlisle. He was pronounced, and very deservedly so, the best, again, at Chester. He has worn well, and all his points are now beautifully developed, without any sign as yet of decline. Still it is only fair to remember, when estimating the merits of the two, that Mr. Badham's horse is only a four-year-old. But we cannot understand how the Suffolk is inferior to the Lincoln grey. There was plenty of young stock to pick from, and some capital working pairs. As a whole, the show of farm horses, without being at all extraordinary for its excellence, was well up to the high-water mark of the meeting.

We can scarcely say as much for the hacks and hunters. We thought the thorough-bred stallions a very middling lot, and one of the Judges confirmed us in our opinion. They were only saved from positive inferiority by the two prize animals; not that either of them is by any means of the high character of Hobbie Noble, or A British Yeoman. Spencer, pronounced to be just the best of the two, was the second horse at Salisbury, where he made no sensation. And then followed such cast-offs as Peppermint, Raven, Come-away, and Burndale. The last of these is a thorough savage, with the worst sullen eye we ever saw in a horse's head. He was bound down, to keep the peace, by all sorts of head-reins and chains; offering a fine opportunity for any of Mr. Rarey's disciples to go through a performance. It was said, indeed, one of the two gentlemen at least, who came in judgment on him, had taken out his ten-guinea diploma; but when we left the unhappy Burndale on Friday, he was still all foam, head-tackle, and bated fury.

The Hack Stallions were far better; only it is difficult to define what a hack is. One man, we remember, at Salisbury, sent a great Cleveland harness-horse, and entered him as a hack. The class here, too, was made up of "all-sorts;" and the Judges joined issue as to whether Sir Watkin's Colonel horse or one of the old sort of roadsters the better came up to the description. An umpire decided in favour of the latter—a very neat nag, with lots of "go," "show," and power about him. Another handsome Galloway in this class was declared to be the best sort of animal to improve the breed of Welsh ponies. These hardly came up to our expectations, and we certainly saw one or two more perfect at the South Wales Show at Cardiff. In fact, the best pony here was a Scotchman, bred as far North as Dumfries, and for his size a very model of strength, with the pony's first excellence—straight, true action. There was quite a history connected with him. In the first place, after some dispute, he had been sold for "sixpence a pound," at which he realized something over twenty. Then, a few months since, Mr. Moffatt gave five-and-twenty for him. Mr. Pain, one of the stewards of the yard, indulged his fancy directly he saw him, and took him at double the price. The same afternoon Mr. Starkey, the owner of Fisherman, the race-horse, *would* have him, and the figure was doubled again, like the horseshoe-sum, up to a hundred and ten guineas!—Just about twice as much as "Highland Laddie" is worth. Neither the hunter nor hack mares will bear speaking of.

The poultry department is said to be doomed; but the birds never showed, at this time of year, in better condition; and some of the Aylesbury ducks were so fine that it was thought they must have had a cross of the goose in them!

A Cheshire show without Cheshire cheese would have been a mistake; and with a hundred-pound prize to be had, no wonder they took a line of their own on the ground. The four thus selected have been presented by the local committee to her Majesty, the Emperor of the French, Lord Derby as Prime Minister, and Lord Berners as President of the Society. Tempting, indeed, were they to look at; but there was no tasting till the dinner, when the Chairman cut away at one in good earnest—not his Lordship's own, we trust. This dinner, which was very well done, was chiefly remarkable for the presence of the Duke of Malakoff, and the speech of Mr. Gladstone. A full report of this is given further on; but it was a terrible mistake to ignore the Stewards and Judges; neither of whom would have had a word had not Lord Berners himself called one of them up. In truth, the toast list might have been improved.

The Chester Meeting, in a word, was "a bumper." There was more than ever to see, and more people than ever to see it. The general arrangements were good, the results encouraging, and the week to be marked, as the ancient philosopher did his happy days, with a white stone.

PRIZES FOR CATTLE, &c.

SHORT-HORNED CATTLE.

JUDGES.—William Ladds, Ellington.
A. L. Maynard, Morton-le-Moore, Ripon.
Thomas Parkinson, Hexgrave, Southwell.

CLASS 1.—Bulls calved on or before the 1st of July, 1856, and not exceeding six years old.

First prize of £30 to Lord Feversham, of Duncombe Park, Helmsley, York (Fifth Duke of Oxford).

Second prize of £15 to Mark Barroby, of Dishforth, Thirsk, Yorkshire (Mark Anthony).

Highly commended.—George Bland's, and William Wetherell's bulls.

Commended.—John Hanbury Blackburne's, Hon. and Rev. T. H. Noel Hill's, Sir Chas. Robt. Tempest's, Richard Stratton's, and another of William Wetherell's bulls.

CLASS 2.—Bulls calved since the 1st of July, 1856, and more than one year old.

First prize of £25 to Viscount Hill, of Hawkstone, Shrewsbury (Hetman).

Second prize of £15 to Stewart Marjoribanks, of Bushey Grove, Watford, Herts (Great Mogul).

Highly commended.—The Hon. Col. Pennant's, and Francis Hawksworth Fawkes' bulls.

Commended.—Another of Francis Hawksworth Fawkes', Hon. and Rev. T. H. Noel Hill's, Henry Edward Surtees', and William Torr's bulls.

CLASS 3.—Bull-calves above six and under twelve months old.

First prize of £10 to Francis Hawksworth Fawkes, of Farnley Hall, Otley, York (Bon Garcon).

Second prize of £5 to Thomas Forrest. of Spurstow Hall, Tarporley, Cheshire (Comet).

Highly commended.—Lieut. Col. Towneley's bull calf.

Commended.—John Grundy's, Mark Barroby's, Sir Wm. Lawson's, Bart., John Armstrong's, and another of Lieut. Col. Towneley's bull calves.

CLASS 4.—Cows in milk or in calf.

First Prize of £20 to Richard Booth, of Warlaby, Northallerton, York (Nectarine Blossom).

Second Prize of £10 to Richard Stratton, of Broad Hinton, Swindon, Wilts (Matchless 4th).

Highly commended.—William Wetherell's cow.

This class generally highly commended.

CLASS 5.—Heifers in milk or in calf, not exceeding three years old.

First prize of £15 to James Douglas, of Athelstaneford Farm, Drem, East Lothian (3rd Queen of Trumps).

Second Prize of £10 to Hon. Rev. T. H. Noel Hill, of Berrington, Shrewsbury (Lady Rockingham).

Highly commended.—Another of James Douglas', and Lieut. Col. Towneley's heifer.

Commended.—John B. Starkey's heifer.

CLASS 6.—Yearling heifers.

First prize of £10 to Richard Booth (Queen of the Isles).

Second prize of £5 to Lieut. Col. Towneley, of Towneley Park, Burnley, Lancaster (Diadem).

Highly commended.—John Grundy's, Lord Feversham's, another of Lieut. Col. Towneley's, and Sir Chas. R. Tempest's heifers.

Commended.—W. Barker Cox's, W. Fletcher's, and two more of Lieut. Col. Towneley's heifers.

HEREFORDS.

JUDGES.—Samuel Anstey, Monabilly.
Samuel Bloxsidge, Warwick.
E. L. Franklin, Ascott, Wallingford.

CLASS 1.—Bulls calved on or before the 1st of July, 1856, and not exceeding six years old.

First prize of £30 to Edward Price, of Court House Pembridge, Leominster (Goldfinder Second).

Second prize of £15 to Thomas Rea, of Westonbury, Pemridge, Hereford (Sir Benjamin).

Highly commended.—Lord Bateman's bull.

Commended.—Lord Berwick's bull.

CLASS 2.—Bulls calved since the 1st of July, 1856, and more than one year old.

First prize of £25 to Richard Hill, of Golding Hall, Shrewsbury (Claret).

Second prize of £15 to John Naylor, of Leighton Hall, Welshpool, Montgomery (Lucknow).

Highly commended.—John Williams' bull.

Commended.—Edmund Wright's bull.

CLASS 3.—Bull-calves, above six and under twelve months old.

First prize of £10 to Thomas Edwards, of Wintercott, Leominster, Hereford (Leominster).

Second prize of £5 to Lord Bateman, of Shobdon Court, Leominster, Hereford (Chester).

Highly commended.—Wm. Perry's, and W. Greenhouse's bull calves.

Commended.—Edmund Wright's bull calf.

CLASS 4.—Cows in milk or in calf.

First prize of 20l to Edward Williams, of Llowes Court, Hay, Brecon (Young Browdy).

Second prize of 10l to Philip Turner, of The Leen, Pembridge, Leominster (Promise).

Highly commended.—George Pitt's cow.

This Class generally commended.

CLASS 5.—Heifers, in milk or in calf, not exceeding three years old.

First prize of 15l to Thomas Rea (Bello).

Second prize of 10l to James Rea, of Monaughty, Knighton, Radnor (Heiress).

Highly commended.—William Perry's heifer.

Commended.—Another of William Perry's heifers.

CLASS 6.—Yearling heifers.

First prize of 10l to James Rea (Czarina).

Second prize of 5l to William Child, of Wigmore Grange, Leintwardine, Ludlow (Peggy).

Highly commended.—Richard Hill's heifer.

Commended.—Lord Bateman's, Edward Price (for two), and George Pitt's heifers.

DEVONS.

JUDGES.—Samuel Anstey.
Samuel Bloxsidge.
E. L. Franklin.

CLASS 1.—Bulls calved on or before the 1st of July, 1856, and not exceeding six years old.

First prize of 30l to Samuel Umbers, of Wappenbury, Leamington, Warwick (Birmingham).

Second prize of 15l to H.R.H. the Prince Consort (The Zouave).

Highly commended.—William Hole's bull.

Commended.—Thomas Webber's, and James Davy's bulls.

CLASS 2.—Bulls calved since the 1st of July, 1856, and more than one year old.

First prize of 25l to John Quartly, of Molland, South Molton, Devon.

Second prize of 15l to George Turner, of Barton, Devon (Clarendon)

Highly commended.—H.R.H. the Prince Consort's, James Merson's, and James Quartly's bulls.

CLASS 3.—Bull-calves above six and under twelve months old.

First prize of 10l to George Turner (Prince Leopold).

Second prize of 5l to H.R.H. the Prince Consort (The Colonel).

Highly commended.—James Davy's bull calf.

CLASS 4.—Cows in milk, or in calf.

First prize of 20l to John Quartly (Picture).

Second prize of 10l to John Quartly (Milkmaid).

Highly commended.—George Turner's and James Merson's cows.

Commended.—Abraham Umbers' and James Davy's cows.

CLASS 5.—Heifers in milk or in calf, not exceeding three years old.

First prize of 15l to Edward Pope, of Great Toller, Maiden Newton, Dorset (Lovely).

Second Prize of 10l to Edward Pope (Dove).

Highly commended.—James Davy's heifer.

CLASS 6.—Yearling heifers.

First prize of 10l to James Quartly, of Molland House, South Molton, Devon.

Second prize of 5l to George Turner (Vaudine).

Highly commended.—Another of George Turner's heifers.

OTHER ESTABLISHED BREEDS,

NOT INCLUDING THE SHORT-HORN, HEREFORD, OR DEVON BREED.

JUDGES.—W. Tindall, Wheatley, Oxon.
J. S. Turner, Seaford, Lewes.
Joseph Woolf, Haslington, Crewe.

CLASS 1.—Bulls calved on or before the 1st of July, 1856, and not exceeding six years old.

Prize of 10l to Earl of Southesk, of Kinnaird Castle, Brechin, Forfar, N.B. (Polled Angus).

Highly commended.—Rev. R. T. Forester's Alderney.

Commended.—Robert Dryden Corbet's Ayrshire.

CLASS 2.—Bulls calved since the 1st of July, 1856, and more than one year old.

Prize of 10l to Lady Pigot, of Chippenham Park, Soham, Cambridgeshire (West Highland).

Class 3.—Cows in milk or in calf.

Prize of 10*l* to Earl of Southesk (Polled Angus).

Highly commended.—Rev. R. T. Forester's Alderney.

Commended.—Robert Dryden Corbet's Ayrshire.

Class 4.—Heifers in milk or in calf, not exceeding three years old.

Prize of 10*l* to Earl of Southesk (Polled Angus).

Highly commended.—Lord Sondes' Polled Norfolk.

Class 5.—Yearling heifers.

Prize of 5*l* to Lord Sondes, Elmham Hall, Thetford, Norfolk (Polled Norfolk).

Highly commended.—Earl of Southesk's Polled Angus.

HORSES.

Agricultural Horses Generally.

Judges.—R. Brewster, The Holmes, Bingham.
W. C. Spooner, Eling, Southampton.

Class 1.—Stallions for Agricultural Purposes foaled on or before the 1st of January, 1856.

First Prize of £30 to G. D. Badham, of the Sparrow's Nest, Ipswich (Suffolk, Emperor).

Second Prize of £15 to Matthew Berridge of Ingarsby, (Leicester, Victor).

Highly commended.—Thos. Crisp's and W. Wilson's Suffolk horses.

Commended.—Alex. Begbie's Clydesdale and Peter Nightingale's grey horse.

Class 2.—Best Stallions for Agricultural Purposes foaled in the year 1856.

First Prize of £20 to Thomas Crisp, of Butley Abbey, Woodbridge (Suffolk, Emperor.)

Second Prize of £10 to Benjamin Taylor, of Peterborough, Northampton (Young England's Glory).

Highly commended.—Another of Thos. Crisp's Suffolk horses.

Commended.—Edward Robinson's Cleveland, and W. Wilson's Suffolk.

Class 3.—Mares and Foals for Agricultural Purposes.

First Prize of £20 to Isaac Fawkes, of Outertown, Annan, Dumfries (Clydesdale Jessie).

Second Prize of £10 to J. H. Hayes, of Frodsham, Chester (Gipsey).

Highly commended.—William Taylor's black mare.

Commended.—William Etches' bay, J. G. Thompson's chesnut, and Thos. Crisp's Suffolk.

Class 4.—Two-year-old Fillies for Agricultural Purposes.

First Prize of £15 to Samuel Fisher, of Whatton, Nottingham (Grey).

Second Prize of £10 to Hon. Col. Pennant, of Penrhyn Castle, Bangor (Bay).

Highly commended.—Thos. Crisp's Suffolk.

Commended.—J. S. Crawley's Suffolk and H.R.H. the Prince Consort's Clydesdale.

DRAY HORSES.

Class 1.—Stallions foaled on or before the 1st of January, 1856.

Prize of £30 to Duke of Marlborough, of Blenheim, Woodstock, Oxon (Clydesdale, Glengarry).

Highly commended.—W. and T. Baker's and S. and R. Spencer's horses.

Commended.—James Robinson's horse.

Class 2.—Stallions foaled in the year 1856.

Prize of £15 to James Rawlence, of Bulbridge, Wilton, Wilts (Buckinghamshire, Hillesden).

Class 3.—Best Mares with Foals at foot.

Prize of £20. *Withheld.*

Class 4.—Fillies, foaled in the year 1856.

Prize of £10. *No entry.*

OTHER HORSES.

Judges.—Captain Barlow, Hasketon, Woodbridge.
C. M. Nainby, Barnoldby, Grimsby.

Class 1.—Thorough-bred Stallions for getting Hunters.

First Prize of £30 to Thos. Mansfield, of Thirkleby Bridge, Thirsk (Spencer, by Cotherstone, out of Polka, by Emilius).

Second Prize of £20 to C. Spence, of Huntingdon Hall, York (Canute, by Emperor, dam by Economist).

Class 2.—Stallions for getting Hackneys.

Prize of £20 to R.P. Ridsdale, of Watergate Bishop, Thornton, Ripley (Troubadour).

Class 3.—Brood Mares for breeding Hunters.

Prize of £20 to J. B. Starky, of Spye Park, Chippenham, Wilts (Golden Locks, by Jack Tar).

Commended.—J. K. Farnworth's and George Holmes' mares.

Class 4.—Brood Mares for breeding Hackneys.

Prize of £15 to J. L. Harland, Bradly Green, Whitchurch, Chester.

SHEEP.

Leicesters.

Judges.—John Bodley, Stockley, Pomeroy.
Charles Stokes, Kingston, Kegworth.
John B. Thompson, Anlaby.

Class 1.—Shearling Rams.

First Prize of £20 to Thomas Edward Pawlet, of Beeston, Bedford.

Second Prize of £10 to R. W. Cresswell, of Ravenstone, Ashby-de-la-Zouch, Leicester.

Commended.—Another of T. E. Pawlet's, John Borton's, and Lieutenant Colonel Inge's rams.

Class 2.—Rams of any other age.

First Prize of £20 to T. E. Pawlet.

Second Prize of £10 to Frans. Spencer, of Clay Brook Magna, Lutterworth, Leicester.

Highly commended.—R. W. Creswell's ram.

Commended.—Another of T. E. Pawlet's, Samuel Umbers', John Borton's, and George Turner's rams.

Class 3.—Pen of Five Shearling Ewes, of the same flock.

First Prize of £20 to Lieutenant Colonel Inge, of Thorpe Constantine, Tamworth.

Second Prize of £10 to Samuel Wiley, of Brandsby, York.

South Downs.

Judges.—E. Trumper, Nuneham, Oxon.
Peter Purves, Kimbolton.
John Waters, Eastbourne.

Class 1.—Shearling Rams.

First Prize of £20 to William Rigden, of Hove, Brighton.

Second Prize of £10 to the Duke of Richmond, of Goodwood, Chichester, Sussex.

Class 2.—Ram, of any other age.

First Prize of £20 to William Rigden.

Second Prize of £10 to the Duke of Richmond.

Class 3.—Pen of Five Shearling Ewes of the same flock.

First Prize of £20 to William Rigden.

Second Prize of £10 to the Duke of Richmond.

Highly commended.—The Duke of Marlborough's Ewes.

Long-woolled Sheep (Cotswolds).

Not qualified to compete as Leicesters.

Judges.—H. Bateman, Asthall, Whitney.
Chas. Clarke, South Copwick, Lincoln.
Robt. Fisher, Leckenfield, Beverley.

Class 1.—Shearling Rams.

First Prize of £20 to William Lane, of Broadfield Farm, Northleach, Gloucester.

Second Prize of £10 to William Lane.

Highly commended.—Thomas Porter's and Robert Garne's rams.

Commended.—George Fletcher's, Thomas Porter's, and Wm. Hewer's rams.

Class 2.—Rams of any other age.

First Prize of £20 to Wm. Hewer, of Hill House, Northleach, Gloucester.

Second Prize of £10 to Robert Garne, of Aldsworth, Northleach.

Highly commended.—George Fletcher's ram.

Commended.—T. Beale Brown's and William Lane's rams.

Class 3.—Pens of Five Shearling Ewes of the same flock.

First Prize of £20 to William Hewer.

Second Prize of £10 to William Lane.

Commended.—Thomas Walker's, George Fletcher's, Thos. Beale Brown's, and another pen of William Lane's ewes.

Short-woolled Sheep.

Not qualified to compete as Southdowns.

Judges.—Joseph Blundell, Bursleden, Southampton.
Geo. Brown, Avebury, Marlboro'.
Henry Thurnall, Royston.

Class 1.—Shearling Rams.

First Prize of £20 to Wm. Humfrey, of Oak Ash, Chaddleworth, Berks (West Country Down).

Second Prize of £10 to William Humfreys (West Country Down).

Highly commended.—Another of William Humfreys' rams.

Commended.—J. & E. Crane (for two rams). John Bryan's, W. O. Foster's, and a fourth of Wm. Humfreys' rams.

Class 2.—Rams of any other age.

First Prize of £20 to Mrs. Baker, of Grendon, Atherstone, Warwickshire (Shropshire Down).

Second Prize of £10 to George Adney, of Harley, Much Wenlock, Salop (Shropshire Down).

Highly commended.—John Bryan's and William Humfreys' rams.

Commended.—J. W. Brown's, G. M. Kettle's, and two more of Wm. Humfreys' rams.

Class 3.—Pen of Five Shearling Ewes of the same flock.

First Prize of £20 to Wm. Humfrey (West Country Down).

Second Prize of £10 to Robert Coles, of Middleton Farm, Norton Bavant, Warminster, Wilts (Hampshire Downs).

Highly commended.—Another pen of William Humfreys' sheep.

Commended.—I. and E. Crane's and Edwd. Holland's ewes.

PIGS.

Judges.—A. Denman, Lewes.
C. Randall, Evesham.
Thomas Trotter, Darlington.

Class 1.—Boars of a large breed.

First prize of £10 to John Harrison, jun., of Heaton Norris, Stockport, Lancashire (white).

Second prize of £5 to Joseph Gill, of Siesden Silsdon, York (white).

Highly commended.—Another of John Harrison, jun.'s boars.

Commended.—T. M. Richardson's white boar.

Class 2.—Boars of a small breed.

First prize of £10 to S. B. Hill, of Beech Hall, Chester (white).

Second prize of £5 to Jonathan Brown, of Brewery House, Aspatria, Cumberland (white).

Highly commended.—John Harrison, jun.'s white boar.

Commended.—Thos. Barker's, P. S. Humberston's, Thos. Crisp's, and Earl of Radnor's boars.

The class generally commended.

Class 3.—Breeding sows of a large breed.

First prize of £10 to Thos. Barker, of Brown's Yard, Leeds, York (white with spot).

Second prize of £5 to Joseph Wilkinson, of Roundhay, near Leeds (white with spots).

Specially commended.—Another of Joseph Wilkinson's sows.

Highly commended.—W. B. Wainman's and Joseph Tuley's sows.

Commended.—Peter Wright's, James Clayton's, Edward Bowly's, and John Palmer's sows.

Class 4.—Breeding sows of a small breed.

First prize of £10 to Lieut.-Col. Towneley, of Towneley-Burnley, Lancaster (white).

Second prize of £5 to Joseph Hindson, of Barton House, Everton, Liverpool (white).

Specially commended.—Thos. Crisp's white sow.

Highly commended.—Lieut.-Col. Towneley's sow.

Commended.—R. H. Watson's, George Mangles', John Harrison, jun.'s, Thos. Crisp's, John Palmer's, and Joseph Wilkinson's sows.

The judges consider this to be an extraordinary class.

Class 5.—Pens of three breeding-sow pigs of a large breed, of the same litter, above four and under eight months old.

Prize of £10 to Edward Bowly, of Siddington House, Cirencester, Gloucester (Berkshire).

Commended.—William Jas. Sadler's Berkshire sows.

Class 6.—Pens of three breeding-sow pigs of a small breed, of the same litter, above four and under eight months old.

Prize of £10 to Samuel Wiley, of Brandsby, York (white).

Specially commended.—Robert H. Watson's white pigs.

Highly commended.—Another pen of Robert H. Watson's white pigs.

Commended.—Hon. Col. Pennant's white pigs.

SPECIAL PRIZES

GIVEN BY THE CHESTER LOCAL COMMITTEE.

CATTLE BEST ADAPTED FOR DAIRY PURPOSES.

Judges.—W. Tindall.
J. S. Turner.
Joseph Woolf.

Class 1.—Bulls calved on or before the 1st July, 1856, and not exceeding six years old.

First prize of £30 to J. H. Bradburne, of Pipe Place, Lichfield, Staffordshire (Shorthorn, Radford).

Second prize of £15 to Joshua Price, of Featherstone, Wolverhampton (Shorthorn, Sutton).

Commended.—Thomas Waller, jun.'s and Richard Barton's bulls.

Class 2.—Bulls calved since the 1st July, and more than one year old.

First prize of £15 to Hon. Colonel Pennant, of Penrhyn Castle, Bangor (Shorthorn, Sir Colin Campbell).

Second prize of £10 to Hon. and Rev. T. H. Noel Hill, of Berrington, Shrewsbury (Shorthorn, Attingham).

Class 3.—Pairs of cows, in-milk or in-calf.

First prize of £30 to Henry Ambler, of Watkinson Hall Farm, Halifax (Shorthorns, Foundling and Woodbine).

Second prize of £15 to Richard Stratton, of Broad Hinton, Swindon, Wilts (Shorthorns, Clarissa and Blossom).

Third prize of £10 to John Churton, of Barrel Well House, Chester (Cross-bred).

Commended.—William Palin's Yorkshire cows.

Class 4.—Pairs of heifers, in-milk or in-calf, not exceeding three years old.

First prize of £15 to Joshua Price, of Featherstone, Wolverhampton (Shorthorns, Vapour and Queen Elizabeth).

Second prize of £10 to Hon. Colonel Pennant (Shorthorns, Lavinia and La Favorite).

Third prize of £5 to John Dawson, of Gronant, Rhyl, Flint (Shorthorns, Lowry and Fancy).

Class 5.—Pairs of yearling heifers.

First prize of £10 to Joshua Price (Shorthorns).

Second prize of £5 to Hon. Colonel Pennant (Shorthorns, Phœbe and Eglantine).

WELSH BREEDS.

Class 1.—Bulls, above two and under three years old.

First prize of £30 to the Hon. Col. Pennant (black).

Second prize of £15 to the Hon. Col. Pennant (black).

Class 2.—Bulls of any other age.

First prize of £30 to the Hon. Col. Pennant (black).

Second prize of £15 to Sir R. B. W. Bulkeley, M.P., of Baron Hill, Beaumaris, Anglesea (black.

Highly commended, Llewelyn Lewis's black bull.

Class 3.—Heifers or Cows, In-calf or In-milk, above two years old.

First prize of £20 to Sir R. B. W. Bulkeley, M.P. (black).

Second prize of £15 to the Hon. Col. Pennant (black).

Third prize of £10 to the Hon. Col. Pennant (brindled).

Highly commended, Sir R. B. W. Bulkeley's and Edmund Swetenham's cows.

Class 4.—Breeding Heifers, above one year old and under two.

First prize of £15 to the Hon. Col. Pennant (black).

Second prize of £10 to the Hon. Col. Pennant (black).

Third prize of £5 to the Hon. Col. Pennant (black).

Class 5.—Breeding Heifers, above two years old and under three years.

First prize of £15 to the Hon. Col. Pennant (black).

Second prize of £10 to the Hon. Col. Pennant (black).

Third prize of £5 to the Hon. Col. Pennant (black).

ESTABLISHED BREEDS, OTHER THAN SHORTHORN, HEREFORD, OR DEVON.

To the Winner of the Society's Prizes for "Other Established Breeds."

Class 1.—Bulls calved on or before the 1st of July, 1858, and not exceeding six years old.

Prize of £15 to the Earl of Southesk (polled Angus).

Class 2.—Bulls calved since the 1st of July, 1856, and more than one year old.

Prize of £15 to Lady Pigot, of Chippenham Park, Soham, Cambridge (West Highland).

HORSES.

The stallions must have served, or shall serve, for at least one season, in the county of Salop, Stafford, or Cheshire, or in North Wales.

Agricultural Horses Generally.

Judges.—R. Brewster.
W. C. Spooner.

Class 1.—Stallions for agricultural purposes, foaled on or before the 1st January, 1856.

First prize of £30 to E. and M. Reed, of Beamish Burn, Chester-le-Street, Durham (Leicester, Nonpareil).

Second prize of £20 to Hon. Col. Pennant (Lincoln, Matchless).

Commended.—John Banks's grey horse.

Class 2.—Stallions for agricultural purposes, foaled in the year 1856.

First prize of £20 to Thomas Crisp, of Butley Abbey, Woodbridge (Suffolk, Emperor).

Second prize of £10 to Benjamin Taylor, of Peterborough (Young England's Glory).

Commended .—Another of Thomas Crisp's, William Evans', and Richard Jones' colts.

Class 3.—Pairs of Horses for agricultural purposes, whether Mares or Geldings.

First prize of £10 to William Palin, of Stapleford Hall, Tarvin (greys).

Second prize of £5 to Samuel Lees, of Newton Danes, Preston Brook, Cheshire (browns).

Commended, Joseph Whitlow's pair of greys.

Class 4.—One-year-old Fillies or Gelding for agricultural purposes.

Prize of £15 to Samuel Lees, of Newton Danes, Preston Brook, Cheshire (bay).

Commended, William Plover's grey filly.

DRAY HORSES.

Class 1.—Stallions foaled on or before the 1st Jan., 1856.

Prize of £10 to Hugh Hughes, of Wood Farm, Shorley, Flint (Young Marquis).

Class 2.—Stallions foaled in the year 1856.

No entry.

OTHER HORSES.

Judges—Captain Barlow.
C. M. Nainby.

Class 1.—To the owner of the best Thorough-bred Stallion for getting Hunters.

First prize of £30 to Christopher Spence, of Huntingdon Hall, York (Canute).

Second prize of £20 to James Baker, of Atherstone (Come-away, by Comrade, out of Bushford Lass, by Sancho).

Class 2.—Mountain Pony Stallions, not exceeding 13 hands high.

First prize of £10 to James Moffat, of Crosby-on-Eden, Carlisle (Scotch pony).

Second prize of £5 to Sir W. W. Wynn, of Wynstay, Ruabon, Denbigh (Welsh pony).

The class highly commended.

Class 3.—Mountain Mare Ponies, not exceeding 13 hands, and Foal.

First prize of £10 to James Rea, of Monaughty, Knighton, Radnor (Welsh).

Second prize of £5 to John Edmunds, of Ivy House, Chirk, Denbigh (Welsh).

Commended, Thos. Roberts', Wm. Pritchards', and T. W. Denton's ponies.

Class 4.—Stallions for Improving the Breed of Welsh Ponies.

First prize of £10 to Sir Pyers Mostyn, Bart., of Talacre, Rhyl, Flint (Young Bantam).

Second prize of £5 to Silvanus Edwards, of Orton, Wolverhampton (Dick).

Class 5.—Mare Ponies, not exceeding 14 hands, and Foals.

First prize of £10 to Sir Pyers Mostyn, Bart., of Talacre, Rhyl, Flint (by Young Bantam).

Second prize of £5 to Thomas Wilcoxson, of Upton, near Chester.

Class 6. — Two-year-old Fillies or Geldings for Hunting Purposes, by a Thorough-bred Horse.

Prize of £10 to Robert Heath, of Hefferston Grange, Weaverham, Northwich (Pretty Boy, by His Grace).

Class 7. — One-year-old Fillies, Colts, or Geldings for Hunting Purposes, by a Thorough-bred Horse.

Prize of £10 to Thomas Parker, of Aldford, Chester (colt by Grosvenor).

Commended, Isaac Fawkes' colt by Turnus.

SHEEP.

Judges.—P. Halse, Molland, South Molton.
— Thompson, Ramshope.
Hugh Watson, Keilor, Cupar Angus.

Class 1.—Welsh Mountain Rams of any age.

First prize of £15 to the Hon. Col. Pennant.

Second prize of £10 to David Roberts, of Plas yn y Cornel, Llansaman.

Class 2.—Pens of five Welsh Mountain Ewes, of any age.

First prize of £15 to Thomas Roberts, of Bodidris, Llandegla, Denbigh.

Second prize of £10 to R. B. Mynors, of Evancoyd, Presteign, Radnor.

Third prize of £5 to R. B. Mynors.

Class 3.—Shearling Rams of the Shropshire Down breed.

First prize of £20 to W. O. Foster, of Kinver Hill Farm, Stourbridge.

Second prize of £10 to J. and E. Crane, of Shrawardine, Shrewsbury.

Commended, another of J. and E. Crane's rams.

Class 4.—Rams of the Shropshire Down breed of any other age.

First prize of £20 to Mrs. Baker, of Grendon, Atherstone, Warwickshire.

Second prize of £10 to George Adney, of Harley, Much Wenlock.

Highly Commended, another of George Adney's rams.

Commended, G. M. Kettle's and Thomas Horton's *(two)* rams.

Class 5.—Pens of five Shearling Ewes of the Shropshire Down breed.

First prize of £15 to J. and E. Crane.

Second prize of £10 to J. and E. Crane.

Commended, Thomas Mansell's and Edward Holland's ewes.

Class 6.—Shearling Rams of the Cheviot breed.

First prize of £20 to the Hon. Col. Pennant.

Second prize of £10 to H. R. Sandbach, of Hafodunos, Llanrwst.

Class 7.—Rams of any other age of the Cheviot breed.

First prize of £20 to the Hon. Col. Pennant.

Second prize of £10 to H. R. Sandbach.

Class 8.—Pens of five Shearling Ewes, of the Cheviot breed.

First prize of £20 to the Hon. Col. Pennant.

Second prize of £10 to H. R. Sandbach.

Commended, another pen of Col. Pennant's ewes.

Class 9.—Pens of five Cheviot Ewes.

First prize of £10 to the Hon. Col. Pennant.

Second prize of £5 to the Hon. Col. Pennant.

Commended, H. R. Sandbach for *(two)* pens.

Class 10.—For the best Pen of five Shropshire Down Ewes.

First prize of £10 to W. O. Foster.

Second prize of £5 to W. O. Foster.

Commended, G. M. Kettle's ewes.

PIGS.

Judges.—A. Denman.
C. Randall.
T. Trotter.

Class 1.—Sows of the Large Breed, with a litter of not less than six Pigs.

Prize of £5 to Peter Wright, of Minshull, near Church Minshull, Cheshire (blue and white).

Commended, John Palmer's white sow.

Class 2.—Sows of the Small Breed, with a litter of not less than six Pigs.

Prize of £5 to Lieut.-Col. Towneley, of Towneley Park, Burnley (white).

Highly commended, Joseph Hindson's (white).
Commended, another sow of Joseph Hindson's.

STEWARDS OF CATTLE.

Robert Smith, Emmett's Grange, South Molton.
Richard Milward, Thurgorston Priory, Southwell.
Thos. Pain, The Close, Salisbury.

Veterinary Inspector—Professor Simonds.

Assistant Veterinary Inspector—R. L. Hunt.

The Judges for Poultry were—
J. Bailey, Mount Street, London.
E. Hewitt, Sparbrook, Birmingham.

The Steward of Poultry—T. H. Powell.

PRIZES FOR IMPLEMENTS.

JUDGES.

For Steam-Engines—
B. Fothergill, C.E., Market-street, Manchester.
W. Owen, Rotherham.
E. Woods, C.E., New Palace Yard, London.

For Steam Ploughs—
J. Clarke, Long Sutton, Wisbeach.
J. Druce, Eynsham, Oxon.
G. Shackel, Earleigh Court, Reading.
Professor Wilson, Iver, Bucks.

For Thrashing Machines—
T. H. Barker, Pusey, Wilts.
J. Clarke.
G. Shackle.

For Chaff-cutters, Pulpers, and Mills—
J. Druce.
J. Hicken, Bourton, Rugby.
Professor Wilson.

For Miscellanies—
F. King, Buriton, Petersfield.
C. W. Willsher, Fetches Farm, Weathersfield.

Consulting Engineer—
C. E. Amos, C.E., Southwark.

For steam-cultivator that shall, in the most efficient manner, turn over the soil, and be an economical substitute for the plough or spade—£500 [not yet awarded].

Por portable steam-engine, above 8, and not exceeding 12 horse power—£25, to R. Hornsby and Sons.

For portable steam-engine, not exceeding 8 horse power £25, to Tuxford and Sons.

Second best—£10, to Clayton and Shuttleworth.

For fixed steam-engine, not exceeding 10 horse power—£20, to Barrett, Exall, and Andrewes.

Second best—£10, to R. Hornsby and Sons.

For boiler for a fixed engine, not exceeding 10 horse power—£10, to Ransomes and Sims.

For portable thrashing machine, to be worked by horse power, not exceeding that of 6 horses—£10, to R. Garrett and Sons.

For portable thrashing machine, not exceeding 8 horse power, for large occupations, to be worked by steam power—£15, to Clayton, Shuttlewortb, and Co.

For portable thrashing machine, that will best prepare the corn for the finishing dressing machine, not exceeding 8 horse power—£15, to Clayton, Shuttleworth, and Co.

For portable combined thrashing machine, that will best prepare the corn for market, not exceeding 8 horse power—£15, to Clayton, Shuttleworth, and Co.

For fixed combined steam thrashing machine, for preparing corn for market, not exceeding 10 horse power—£20, to R. Hornsby and Sons.

For fixed combined steam thrashing machine, for preparing corn for market, not exceeding 8 horse power—£10, to Clayton, Shuttleworth, and Co.

For corn-dressing machine—£5, to R. Hornsby and Sons.

For corn-dressing machine, for preparing corn for market after being riddled and screened—£5, to R. Garrett and Sons.

For screen for corn—£3, to Robert Boby.

For screen for seeds—£3 [no competition].

For chaff-cutter, for horse or steam power—£5, to James Cornes.

Second best, £3, to B. Samuelson.

For chaff-cutter, for hand power—£3, to Ransomes and Sims.

Second best, £2, to Richmond and Chandler.

For grinding mill, with steel or stone grinders, for grinding agricultural produce into meal, to be worked by horse or steam power—£10, to R. Garrett and Sons.

For grinding mill, with steel grinders, for grinding agricultural produce—£5 [prize withheld].

For Linseed or corn-crusher—£5, to Ransomes and Sims.

For oil-cake breaker—£5, to E. H. Bentall.

For oil-cake breaker, for common cake—£3, to W. N. Nicholson.

For bone mill, to be worked by steam or other power—£10, to A. Crosskill.

For bone-dust mill—£5, to A. Crosskill.

For turnip-cutter—£3, to Ransomes and Sims.

For turnip-cutter, for hand power—£3, to B. Samuelson.

For root-pulper—£3, to E. H. Bentall.

For churn—£3, to Burgess and Key.

For cheese-making apparatus—£3, to T. F. Griffiths.

For cheese-press—£3, to H. Carson.

SILVER MEDALS.

William Woofe, for a paring plough.
R. and J. Reeves, for cheese-making apparatus.
Priest and Woolnough, for a Rowley's blast drill.
E. Page snd Co., for tile machine.
Burgess and Key, for patent chronometrical thermometer.
George Turner, for a whisk for eggs, &c.

HIGHLY COMMENDED.

E. Page and Co.'s chaff-cutter, for hand power.

Garrett and Son's corn-dressing machine.

Robert Boby's corn-dressing machine.

E. A. Ferryman's churn.

Hugh Carson's chaff-cutter, for horse or steam power.

Ransomes and Sims's portable thrashing machine, for horse power not exceeding 6 horses.

Hornsby and Son's oil-cake breaker.

W. N. Nicholson's oil-cake breaker.

Smith and Ashby's oil-cake breaker, for common cake.

Ransomes and Sims's portable steam-engine, above 8 and not exceeding 12 horse power.

Tuxford and Son's portable steam-engine, above 8 and not exceeding 12 horse power.

Clayton, Shuttleworth, and Co.'s portable steam-engine, above 8 and not exceeding 12 horse-power.

Hornsby and Son's portable steam-engine, not exceeding 8 horse power.

George Howe's boiler for fixed engine, not exceeding 10 horse power.

Picksley, Sims, and Co.'s turnip-cutter, for hand power.

Robert Boby's patent adjusting corn screen.

Wallis and Haslam's patent spherical plummerblock and bearing.

Hill and Smith's general assortment of iron hurdles and gates.

Ransomes and Sims's flour-mill, with 3-feet stones.

Thomas Stapleton's corn-grinding mill, with 3-feet-6-inch stones.

Hornsby and Son's combined portable improved thrashing machine.

B. Samuelson's root pulper.

J. Woods and Sons' root pulper.

Hornsby and Sons' combined fixed thrashing machine.

Garrett and Sons' combined fixed thrashing machine.

Clayton and Shuttleworth's set of fixed barn works and thrashing machine.

Humphries' portable thrashing machine, with straw shaker.

Hornsby and Sons' portable thrashing machine, with straw shaker.

COMMENDED.

W. N. Nicholson's corn-dressing machine.

Barrett, Exall, and Co.'s chaff-cutter, for horse or steam power.

Ransomes and Sims's portable thrashing machine by horse power.

W. L. Fisher's oil-cake breaker.

E. H. Bentall's oil-cake breaker for common cake.

A. Silcock's cheese-press.

Brown and May's portable steam-engine, not exceeding 8 horse power.

Ransomes and Sims's portable steam-engine, not exceeding 8 horse power.

James Wood and Son's pair of wheels, and improved boxes and axles.

Clayton and Shuttleworth's portable mill, with stones.

Ransomes and Sims's portable combined double-blast thrashing machine.

E. and T. Humphrey's portable combined thrashing machine.

Hart and Gibbons' portable combined thrashing machine.

Ransomes and Sims' portable combined thrashing machine.

H. Carson's turnip cutter for hand power.

Barnard and Bishop's turnip cutter for hand power.

STEWARDS OF IMPLEMENTS.

Sir Archibald K. Macdonald, Bart.
Mr. Barnett.
Colonel Towneley.

PRIZES FOR CHEESE AND BUTTER.

Judges.—Charles Bate.
Edward Corderoy, Tooley Street, London.
Edward Hewitt, Montague Close, London.
John Moss, Manchester.
William Tilston, Liverpool.
James Watson, Birmingham.

CHEESE.

Champion Prize of £100.

Four Cheeses, not less than 60lbs. weight each, entered in Classes 1 or 2.

To George Willis, of Ridley Hall, Tarporley, Cheshire.

Class 1.—Coloured Cheese made in 1857.

Four Coloured Cheeses not less than 60lbs. weight:

First prize of £30 to R. B. Ankers, Huxley Green, Huxley, Cheshire.

Second prize of £20 to John Byram, Pool Farm, Overpool, Eastham, Cheshire.

Four Coloured Cheeses not less than 40lb. and under 60lbs. each:

First prize of £20 to Charles Beresford, Elton, Sandbach, Cheshire.

Second prize of £15 to E. H. Martin, of Bar Hill House, Madeley, Staffordshire.

Four Coloured Cheeses under 40lbs. each:

First prize of £15 to John Churton, Barrel Well House, Chester.

Second prize of £10 to Jonathan Gresty, Thurlwood Farm, Bechton, Lawton, Cheshire.

Highly Commended.—Joseph Salmon's and Thomas Dutton's cheeses.

Commended.—H. B. Briscoe's, James Cookson's, and Nathaniel Tomlinson's cheeses.

Class 2.—Uncoloured Cheeses made in 1857.

Four Uncoloured Cheeses not less than 50lbs. weight each:

First prize of £30 to John Hartshorn, Eccleston Hill, Chester.

Second prize of £20 to R. B. Ankers.

Four Uncoloured Cheeses under 50lbs. weight each:

First prize of £20 to P. A. Wood, Oak House, Over and Winsford.

Second prize of £15 to Jonathan Gresty.

Highly Commended.—John Byram's and Mary Wrench's cheeses.

Commended.—John Churton's, William Palin's, and Thomas Lowe's cheeses.

Class 3.—Coloured or Uncoloured Cheese made in 1858.

Four Cheeses not less than 60lbs. weight each:

First prize of £20 (uncoloured) to George Jackson, Old Withington, Congleton.

Second prize of £15 (coloured) to James Cookson, Utkinton, Tarporley, Cheshire.

Commended.—Joseph Whitlow's, John Lowe's, Thomas Taylor's, and Mary Wrench's cheeses.

Four Cheeses Coloured or Uncoloured not less than 40lbs. and under 60lbs.:

First prize of £15 (coloured) to P. A. Wood.

Second prize of £10 (coloured) to John Churton.

Four Cheeses Coloured or Uncoloured under 40lbs. weight each:

First prize of £10 (uncoloured) to Jonathan Gresty.

Second prize of £5 (uncoloured) to William Acton, Appleton, Warrington.

BUTTER.

Tub or Crock not less than 20lbs. weight:

First prize of £10 to Viscount Combermere, Combermere Abbey, Nantwich, Cheshire.

Second prize of £5 to William Jones, Fron Wen, Llangerniew, Denbigh.

Steward of Cheese.—H. White.

General Director of the Show.—Mr. Brandreth Gibbs.

THE DINNER

took place on Thursday afternoon, at four o'clock, in the Music Hall. Somewhere about five hundred were accommodated; but it is said twice the number of tickets might have been disposed of. The entertainment, including a pint of wine, was provided by Mr. Bollard, of Chester, at eight shillings a-head. It was honestly worth all the money, and the whole arrangements, attendance, and ventilation very well done. Lord Berners, as President for the year, took the Chair, supported by the Duke de Malakoff, the Count de Platen (the Swedish Ambassador), the Mayor of Chester (Mr. Humberston), Lords Westminster, Powis, Grosvenor, Londesborough, Eversley, Delamere, Hill, Sandon, Ashburton, Bateman, Portman, Denman, and de Tabley. The Right Honourable W. E. Gladstone M.P., the Honourable Colonel Nelson Hood, the Honourable Colonel Douglas Pennant, Sir W. W. Wynne (Vice-President), Sir Stephen Glynne, Sir Massey Lopez, Sir Charles Anderson, Sir Charles Morgan, Sir E. Baker, Sir Archibald Macdonald, Sir P. Grey Egerton, and Sir J. Johnstone. Professors Wilson and Simmonds. Messrs. Acland, Majoribanks, Caldwell, W. H. Wilson, H. S. Thompson, Raymond Barker, Wren Hoskyns, R. B. Milward, G. Turner, N. G. Barthropp, Robert Smith, F. Barlow, W. C. Spooner, W. F. Hobbs, G. Shackell, Banks Stanhope, M.P., W. Torr, Du Cane, M.P., Brandreth Gibbs, T. Pain, W. G. Cavendish, M.P., Baker (Cottesmore), Jonas Webb, Croker (Ireland), James Howard, J. K. Fowler, J. Fowler, jun., and a number of well-known agriculturists, judges, and exhibitors.

After "The Queen," "The Prince Consort," and "The Royal Family" had been given from the Chair, and duly honoured by the company,

The Marquis of Westminster proposed the health of the Foreign Ministers who had honoured the Society with their company. He congratulated the gentlemen present upon the manner in which, by responding to the toast of the Queen, they had preserved the reputation of the Cheshire men, who had been always ready to contribute in every way they could show their loyalty. Some months previously he ventured to express his anticipation of the manner in which the Agricultural Society would be received by the gentlemen of Chester and Cheshire; and he was delighted to find that his anticipations had not been unfounded. And he was also pleased to see the very cordial manner in which the meeting had received its distinguished visitors. The success of their meeting had been very much enhanced by the manner in which the neighbouring gentry had come forward to help onward the good cause; and he would mention particularly those residing in the adjoining counties of Wales; and it was solely owing to their agency that the Society was enabled to carry on the wonderful exhibition which had been displayed before them. He would not enlarge upon the subject of agriculture, which he might have liked to do, but confine himself to the toast which he had to propose, and which introduced the names of two distinguished foreigners who were present that evening. They were honoured that evening with the presence of a Marshal of France (loud applause). It was, he thought, perfectly unnecessary for him to detail the military exploits that had encircled the name of that great general. Famous as he had been in arms and distinguished as had been his military exploits, yet there was another reason they should not omit to mention, because it was not always the capacity in which a great general acted, and that was, he came there as the representative of the mighty monarchy of France, whose Emperor had sent him, not for the military achievements to which he had alluded, but as the minister of peace (loud applause). It was in that capacity they must regard him; and it was with a view of cementing the interests which then existed between the two important countries that he had come to England. History told them that there had been many a war between France and England, and it went further and told them that those wars never took place without producing the inevitable consequence—misery to each. Sweden also had her representative amongst them (applause). She was represented by a gentleman well-worthy of their esteem and respect. And it was a very pleasing fact of which Count Platen had informed him, that lately they had commenced holding similar meetings to the one they had been holding, in various parts of his country. The result which had attended these meetings had been most satisfactory, for whereas Sweden could formerly hardly supply herself with corn, she was an exporting country. There was another circumstance worthy of note as regarded Count Platen—he was half an Englishman, having served as a midshipman for three years in the British navy (loud applause). He sincerely hoped that their mission might long continue what it was; and, in conclusion, he would call upon them to drink the health of their distinguished visitors. (Drunk with enthusiastic cheers).

The Duke DE MALAKOFF, who was received with loud cheers, replied in French, and said—My lords and gentlemen, I rise to thank the Marquis of Westminster for proposing, and you for receiving, the toast of my health with so much cordiality and friendship. I am exceedingly happy to have this opportunity of standing before you, and with all the warmth of nature which I am capable of using of thanking you, and not only you but that class you represent, for the repeated protestations of good-will which the French nation is continually receiving from you. I would thank you, my lord, and you, gentlemen, in the name of the *corps diplomatique*, of which the Count Platen and myself are members, for the very kind way in which you have drunk our healths. Your country has stirred France to improve her agriculture, like you have done; we have been learning from you, and it has been beneficial to us. May the happy interchange of thoughts and enterprises long continue (applause). It gives me great pleasure to represent the French nation at the Court of your gracious Queen; but, in doing so, I have duties to perform which I much feared would prevent my accepting your kind invitation to be present on this occasion, which was sent a month ago. I had a summon to attend Aldershot this day, which, on account of this meetng, I declined, one reason being that I am fond of agriculture, and have done my best to promote its development in the French colonies of Algeria, where I am happy to say it is making great progress. I again assure you I am very grateful for the honour you have done me in drinking my health (cheers).

Count DE PLATEN, who was also most cordially received, said he hoped that they would excuse him saying a few words in responding to the toast, as he knew that one of the principal rules at meetings like the present was not to take up more time than was actually required for the task in hand. He was at a loss to know which foreigners coming to a foreign country admired most—the interesting view that met their eyes, or the kindness with which they were allowed to look into everything. For his own part he came down to Chester to make observations on the show, as he was very fond of agricultural pursuits, in addition to which agriculture had done great things for Sweden, and he hoped would do more. At the same time he hoped the nations of Europe might continue in the same friendly relations as they had done, and then the whole human community would reap the benefit (loud applause). He had in conclusion but one wish to make, and that was that they would ever continue to exercise the same feelings as they had done for Swedes (*swedes*) in general (cheers and laughter).

"The Army and Navy" was next given, and responded to by the Hon. Col. Nelson Hood.

The Right Hon. W. E. GLADSTONE, M.P. was received with loud cheers. He said:—My lords and Gentlemen, I am quite sure that I could not fail of addressing what would be acceptable to you this evening if only it were true that the subject with which a man has to deal inspires with it ideas that appropriately belong to it; for you have chosen me, my lord—and it is only in obedience to your commands that I acquiesce in your choice—you have chosen for me an undeserved honour in entrusting me with the charge of proposing to this company that they should drink what every man will drink with the utmost satisfaction and joy—"Prosperity to the Royal Agricultural Society of England" (applause). For this is a toast, my lord, that carries written upon its very brow, the whole of its claims to an enthusiastic reception (applause). A society founded under the highest auspices, a society which invites in its support every class of the community; and which, therefore, is itself among the efficacious means of exhibiting to the world the union of classes, without which there is no strength in any community—(applause)—and with which every community is irresistible and indestructible; and this society is so founded, and so combines the universal suffrages of the country, directed, as it is, to such a purpose as that of promoting the most essential and the most venerable among all the arts that furnish material for the industry of man (applause). Whatever else may come and whatever else may go, this at least we know, that no vicissitude of time or change can displace agriculture from the position it has ever held—(Hear, hear)—from the very first state of the generations of man until the last day in the crack of doom itself (cheers). Now, my lord, as one having indeed little claim to address you, but not uninterested in agriculture and its results, I will state in a few words to this company why it is I think we ought to feel grateful to the Agricultural Society for having chosen Chester as the scene of one of its meetings, and for the general prosecution of its labours, with that energy, intelligence, and success that have ever marked its progress. In the first place I take it that it is of the utmost importance to agriculture that it should have the means of recording its ascension and its decline. We must not suppose that because it is an ancient art, and one that has been prosecuted in its simplest forms, it is therefore otherwise than an art which, of all others, perhaps, affords the most varied scope and the largest sphere of development to the powers of the human mind (Hear, hear). And it is most essential , if, indeed, it be true, as true it is, that a large part of the national welfare hangs upon its prosperity—it is most essential that you should have the best and most efficacious means of comparing its state in one year with its state in another—of recording for future encouragement the progress that has been achieved in the past; and if perchance a time should come when in any one of its branches of enterprise some partial failure should be perceived, that that failure should be noted at the first moment when it becomes visible, in order that the sense of the defect may lead to its being at once repaired (Hear, hear). My lord, I think it may be truly observed that this—I must say distinguished—I may say illustrious society, appears to me to supply a want which is the greatest inherent want of agriculture. If we look to the case of manufactures, it is their nature to collect themselves in enormous masses around great centres of industry. If we look to commerce, incessant communication between every part of the commercial system of the country is the very vital air it breathes, and is naturally inseparable from commercial development. But with agriculture the case is different; for, on the contrary, its nature is to be gathered around local centres which, under ordinary circumstances, have little or no connection or communication with one another. It is, in comparison, an isolated art, and therefore it might follow, under general circumstances, that agriculture was languishing in various quarters of the country, simply from the want of a knowledge of the progress achieved in other portions of the land (Hear, hear). Well, now, if I am right in saying that this is the besetting danger and difficulty of agriculture, is it not true and obvious that the society, whose festival we commemorate today, is, by the very principles of its construction, adapted effectually to supply that want—(Hear, hear)—for its business is to bring together the men and the minds of all portions of the country. The stock of Devonshire, the horses of Suffolk, the various products of England, are exhibited in the yards to-day. The agriculture of England, through the means mainly of this society, is rapidly attaining to the position to have but one heart and one mind—one common pulse that causes the circulation of the vital fluid throughout the whole system—one common stock, into which everything that skill, that industry, that intelligence, that capital had achieved in every single part of the country, made the common property of the other portion of the country (applause). Well, again, my lord, I will venture to give another reason why myself, an uninstructed person, ventured to feel a sentiment of gratitude to those who, in this matter, give us the benefit of their instruction. If we look to the trade of the farmer, it seems to me to stand distinguished from all other trades—not in the less, but in the greater amount of the demand that it makes upon his mental powers. In point of fact, if we are to regard the farmer as an isolated man he has got to struggle with everything. He ought to understand the whole universe in which he lives, and almost every science that belongs to the entire range of the human intellect. He ought to be profound in meteorology; he ought to be a consummate chemist; he ought to have such a knowledge of birds and animals as scarcely a life could acquire. He ought to be a mechanist of the first order; and in point of fact there is no end to the accomplishments, which the individual farmer, to be a good farmer, if he stand alone, ought to possess (applause). And if I take the case of two men setting out in life with a moderate capital at their command — say two men who have £5,000 to dispose of; and the question being whether they are to enter into some ordinary trade, or whether they are to enter into the business of farming, I say that man who takes his £5,000 to stock a farm, which is let to him as a tenant farmer, will require far more of intelligence in order to enable him properly to transact his business than if he opened a shop in some street in a great city (Hear, hear). Well now, gentlemen, it is eminently desirable, but you will agree with me that it is not possible, that the farmer should be a profound chemist, an accomplished meteorologist, and the possessor of those other arts which it is desirable he should possess. A pretty good knowledge of some of them he may attain through practice, but he cannot be possessed of every accomplishment necessary. What has he to know of the working of machines? Does not the comparative value of machines turn often on matters of profound calculation? What is he to know of the analysis of soils? What of the manures which he employs? Here, again, comes in the Royal Agricultural Society. The Royal Agricultural Society applies to the machines that are offered to your patronage, the severest test that science has devised. It applies to the manures with which you are to fertilise the ground, those searching analyses which enable you to know with what materials you are dealing; and, in point of fact, in general enables you to prosecute the arduous path of improvement under the safeguards and guarantees of a knowledge which no single individual can possess, but which this society amasses and accumulates, brings to the door of every man, and places therefore at his disposal (applause). Well, now, my lord, I have given, I think, reasons enough why we should be grateful to the Royal Agricultural Society for having come here to hold its meeting in the ancient and venerable city of Chester. I feel indeed ashamed to be the organ, in any sense, of the sentiments of this neighbourhood, when I remember the recency of my own connection with it, and when I recollect that I speak in the presence and in the neighbourhood of those whose families have been rooted to the soil for more centuries almost than I could count years. But, at the same time, I cannot help feeling how appropriately this scene has been chosen for the present anniversary. In this town we meet under the shadow of a venerable cathedral. We meet in a city which derives its name from a denomination established in England 2,000 years ago. But yet we see this ancient city, which has lately been subjected to the influence of change—we see it now becoming the centre of a new traffic—stretching forth the arms of its suburbs right and left, and promising so to flourish and to grow that the Chester of the 18th century will bye-and-by be scarcely recognised in the expanded dimensions of the Chester of the 19th. It associates the new and the old—it associates them as they are associated by the Royal Agricultural Society, which, aiming at the improvement of the one great primitive pursuit of man, brings to bear upon the primitive pursuit of every discovery of history—all the patient thought of to-day, all the hope of tomorrow and the future (applause). And let me add this—for I am sure, if there be one cause more than another that has given to this society its place in your universal confidence, it is that which I am about to mention. I have no doubt you love it for the purposes to which it is directed. I have no doubt you rejoice in the union of classes which it exhibits. But, as it appears to me, there is nothing more admirable in its constitution and machinery than that prevailing spirit of publicity and fair play which attends the whole of its proceedings (applause). It has functions to discharge which involve the reward of merit. The reward of merit involves constant comparison of merit. The comparison of merit necessarily grates upon the feelings; and yet, notwithstanding, here is a body which deals with every kind of product of agriculture, and every kind of instrument applicable to agriculture, which yet continues to retain universal confidence—the confidence alike of the victors and the vanquished in their honourable strife (cheers). And why is this? It is because its proceedings, like all other agricultural proceedings pretty nearly, are completely in the face of day. There is no secret about its details. The spirit of secrecy it abhors. Everything that is done is done subject to the free judgment of Englishmen. The judges themselves, who pronounce upon your performances, are judged, in your free, unlicensed, and unrestrained liberty of communication (applause). And the spirit that I believe has, more than anything else, tended to preserve for us the vital power of our public institutions—I mean that of a thorough, and unshrinking, and unswerving publicity—is the spirit which we regard as the guarantee of fairness, and is the spirit to which every proceeding of this society appears to be made to conform (Hear). I cannot help reminding this company, with reference to what has fallen from the distinguished Ambassador of France, that he perhaps has done us more than justice when he speaks of the benefits that the industry of his own country has received from the industry of ours. It is but fair that those acquainted with the history of the commercial, and particularly of the manufacturing progress of this country, should here publicly acknowledge in return for the compliment he has paid you, that it is to Frenchmen, and to the sedulous imitation of what Frenchmen have done, by their taste and skill, that we owe no small part of the rapid progress of the day to the manufacturing prosperity of England (applause). And to you, gentlemen, who know nothing, thank God, of rival interests as between class and class, to you I am sure it will be matter of deep satisfaction if you hear from authority so distinguished and illustrious the assurance that some part of the benefits at least which British manufactures have received from those of France have been repaid and compensated in what France has learned from the industry and skill of the British farmer (applause). I have detained you perhaps too long (cheers)—I am quite sure quite long enough; if the speech be measured by my own merits, it is already more extended than need be (cries of "Go on," and cheers). If it were to be measured by the dignity and by the capability of the subject, then I am afraid, gentlemen, I might prolong these observations until even your patience would be exhausted, and my best apology would not be received with that cheering and reassuring encouragement to continue which some of you have given. It is my duty to remember, and, if necessary, to remind you, that even the happy hours of such a meeting as this, where we mix together our sympathies and feelings, and exchange our ideas with regard to matters deeply interesting to our own state, and the condition of the country—even those happy hours must draw to an end; for, after what I have said with regard to the claims of the Royal Agricultural Society, I will not longer trespass, even with your permission, upon your patience; but I will beg you now to join me in sustaining that good character which Chester—and I hope I may say with regard to a neighbouring county so near—which Flintshire, also, has shown upon this present occasion. It is admitted on all hands you have given the society a welcome worthy of its services and its objects. Give a similar welcome to the toast I now propose to you: "Prosperity to the Royal Agricultural Society of England" (loud cheers).

The toast having been drunk with loud cheers,

Lord PORTMAN, in proposing the health of the president of the society, said: As one of the half-witted, half-educated, half-instructed farmers, as ignorant as a farmer might be, if they were to attempt to come up to the standard which the right hon. gentleman had placed before them as to what was to make the perfect farmer, he trusted they should never be submitted to a competitive examination. It was his duty, however, to propose to them the health of the president of that great society. He had known his noble friend from earliest boyhood. He had known him at Eton, and he had again known him upon his first farm; and it was because they had endeavoured to mingle science with practice that they had chosen him to be president of this society. His Lordship then referred in lively terms to the weeds and slovenly farming he had witnessed in Cheshire.

Lord BERNERS, in responding, said that for 20 years the society had migrated to various parts of the country, and he must say that their migration to the county of Chester would not be without its essential benefit. It appeared that there had been spent in the society since its establishment no less than £154,470 in the promotion of agricultural improvement; and that there were last year 5,200 members belonging to the society. Since the commencement of the society there had been not less than 10,000 members elected; and there was this curious fact—it was a fact which he was much surprised at hearing from their worthy secretary, Mr. Hudson, to whom the whole country owed a debt of gratitude for the energy and zeal he had displayed in the execution of his duty—that, since the commencement of the society, the secretary stated to him, the average change in three days was no less than two new members, and two members who had ceased to be connected with them from deaths or casualties. Such, then, was the stability of the society. During his presidency they had seen what he thought all acknowledged to be an established fact—that steam-power could be applied to ploughing (applause). He thought all who had seen the ploughs at work were perfectly satisfied that there were many soils, certainly such as that of the deep alluvial lands of Chester, which wanted nothing but the application of science with practice to become the most valuable in England.

Sir W. WYNN, M.P., said: My Lord, may I ask you and the ladies in the gallery to pay a tribute of gratitude to the mayor and corporation of this city for the kindness they have shown, and for the assistance they have given to this society in making this show, what it must be allowed on all hands to be, one of the most successful that the society has ever held. I may say that up to the present time one-third more people have been in the show-yard than on any previous occasion (cheers). I think we ought to be obliged to the corporation for placing in the hands of the society that magnificent roodee which makes so good a show-ground, and we may thank the citizens for allowing us to dine in this hall. I think I am only returning the feeling of this society when we thank the mayor on behalf of the society (cheers). He is one who has laboured most indefatigably from the first time when it was suggested that this society should come to Chester; and since it was determined to hold the show here, he has worked most unceasingly in trying to bring it to the successful issue, in which he has succeeded. "The Mayor and Corporation of Chester" (cheers).

The MAYOR of CHESTER: He was glad the city had been able to afford the best show ground the Society had ever had, on which, perhaps, he might say, the finest show of cattle ever held by the Society had taken place (cheers). He must also congratulate the noble chairman on being present on this occasion, as being the first to introduce the Royal Agricultural Society to this locality. He (the Mayor) could not take to himself the credit which Sir W. W.

Wynn had paid him. He must include the gentlemen in this neighbourhood and district, the gentlemen who had so nobly come forward with subscriptions when it was necessary to obtain a large fund to enable the Society to hold a great meeting. The local committee must also be included, and also the honorary secretary, who had made such perfect arrangements for the comfort of the visitors, and he begged to thank those gentlemen connected with the railways for the liberality with which they have made preparations for the accommodation of the public. As to the agriculture of the neighbourhood, he (the Mayor) would claim credit to the Cheshire farmer. It was a trite saying that he who made two blades of grass to grow in the place of one, was a benefactor to mankind, and the Cheshire farmer, by the free use of bone manure on farms that at one time fed only twenty head of stock, now fed forty (Hear, hear). During the last week, they had seen trials of steam ploughing. Those trials had not been decisive, but he hoped the makers would go on, and improve their machinery. When a boy, he had been obliged to pay a £5 note to travel to Westminster School in twenty hours, but since he had had the honour of being connected with the Royal Agricultural Society, he had travelled to London in 4 hours and 50 minutes, for one guinea. He, therefore, called on the makers of steam implements not to rest satisfied until they had brought out a machine which would do the work in one-fifth the time and at one-fifth the cost.

Earl POWIS proposed "Agriculture, Manufactures, and Commerce." It was to their manufactures they were indebted for their richness, while it was to the other branches of the community they were indebted for the consumption of their commodities. Long might the union between agriculture, manufactures, and commerce continue, like the three Graces of old, who were united by one common bond of amity and love (cheers).

Sir E. KERRISON proposed the health of the Labourers of England, a toast which was never received in any part of the kingdom but with the greatest applause. They had seen the animals in the show to-day, but they should not forget that it was mainly to the labourers they were indebted to the care with which they had been tended. He would ask them to whom were they indebted for the means by which the stock had been brought to them by the railways? why it was the labourer of England, and if there were any means of repaying them, it would be by elevating their social condition. They wanted to advance him in his social condition, and if he remained in their neighbourhood, and agriculture advanced in improvement, then the labourer should keep pace with that improvement. There was another subject to which he wished to allude, and if they wished to improve the labourers, they should so far improve their dwellings, that when they came home to a comfortable house they should have no desire to leave it. "The labourers of England."

M. de TREHONNAIS said, the toast I have to propose is, "The Railways." If our age wanted an appropriate emblem to stamp its peculiar character in the annals of history—if a great fact was wanted—who, among the living generations of mankind, would for a moment hesitate to proclaim with grateful and exulting acclamations, the word "railways," a mighty engine of peace, civilization, and progress. Like living arteries, they propel through the land life, judgment, and activity. They equalize the remunerations of our labour and industry by bringing the best markets to the door of our barns and the gates of our paddocks. With the swiftness of lightning, the resistless might of steam, they scatter abroad light, knowledge, and morality. They bring near distant men and things; they throw the broad light of comparisons into hidden corners, and deep-rooted prejudices which, beneath their benign influence, melt like the wintry snow before the beams of the spring sun; and raising our speculations to a more solemn and more exalted sphere, are they not the mighty instruments of God's providence, in promoting grace and good-will among men by fostering general acquaintances and connections between communicaties, and bringing within the ready reach of our wants and comforts all the treasures and luxuries which nature, the work of his almighty hand, has so bountifully scattered in endless profusion and variety all over the world? If as members of the great human family, we are bound to revere this toast with an enthusiasm commensurate with its merits, are we not more so, as agriculturists, as Englishmen or foreigners, and especially as members of the Royal Agricultural Society? Without the existence of railways, could the truly magnificent spectacle we now contemplate under the ancient walls of this city, have been displayed to our delighted admiration? Could the vast concourse of people which have flocked from this densely-populated neighbourhood, from your blue Celtic hills, and even from foreign lands, have gathered together within the frail enclosure which contains such valuable riches? And, lastly, let us contemplate with a moment's thought, the great influence this spectacle cannot fail to exert over the agricultural population of this district—an influence which, without the existence of railways, would have been confined and narrowed into a limited circle (loud cheers).

Mr. TITHERINGTON, as Chairman of the Birkenhead Company, acknowledged the toast, and expressed a hope that the railway companies would take lessons from the Royal Agricultural Society in the united manner in which its efforts were carried out.

Mr. JOHN FOWLER, jun., proposed the "Stewards and Judges of the Show." In his opinion, the duties of the judges, at the present show, had been performed in a very satisfactory manner.

Mr. BRANDRETH GIBBS responded to the toast, and traced the operations of the Society year by year, showing that the Society was in a very promising condition.

In answer to a call from the Chairman, Mr. SHACKEL, as one of the Judges, stated his opinion that the improvements in machinery were very great, and he hoped before long to see steam power used in ploughing. He and others had been for the past few days examining implements for agricultural purposes, and it was for them to say which was the best means of cultivating the land, and it would be for them to decide which was the best mode of farming, but he must think steam power would be a great boon to the farmer. Before leaving home, he had mowed 20 acres of oats, which by this time had been harvested; and, instead of paying 5s. an acre, it did not cost him more than 1s. 6d. to 1s. 8d. Mr. Shackel concluded by bearing testimony to the desirability of giving comfortable cottages to farm labourers, seeing that they would, as it were, have an interest in the farm, and do their work all the better.

Lord DELAMERE proposed "The Health of the Duke of Marlborough, the President-elect." A domestic affliction had prevented his Grace from attending, but it was to be hoped he would carry out the office as well as it had been carried out during the past year.

The CHAIRMAN said it had slipped his memory to thank the cheese-makers, but he would thank them now most heartily for the cordial manner in which they had received the Royal Agricultural Society during the present meeting.

FARMING AS IT WAS.

COMMUNICATED BY LORD WILLIAM LENNOX.

There can be no doubt that the high prices of labour, rent, manure, taxes, and rates are the principal evils with which the agriculturist has to contend, and it is to a reduction in these particulars that he must look for relief. In the present article it is not, however, our intention to dwell upon the by-gone question of free-trade in corn, or argue the repeal of the malt-tax, still less to discuss the present system of taxation; but merely to give a brief statement of what farming was sixty-six and thirty-six years ago. It would be a work of supererogation to point out what it is at the present day, for the reader will probably be more conversant with the subject than the writer, whose live stock (to quote the lines of Sheridan) consists of a pony and a pointer, and whose land may be found in the mignonette-pots outside his window. Being, however, of an inquiring mind, I have taken the trouble to refer to documents of former times; and being in possession of the accounts and expenses incident to a farm which has been held by a friend of mine since the year 1790, I purpose laying before my readers an account of the prices of grain and labour, of the expense of cultivating a given portion of the land in 1792 and 1822, and of rent paid and poor-rates levied on the farm in question.

This farm, I must premise, is about 300 acres, of which about 180 acres are under the plough; the remainder upland pasture.

First, then, the rent was per annum—

In 1792	£300	Poor-rates	£ 30
In 1822	500*	Ditto	100

It was free of great tithes.

Prices for labour paid in 1792 and 1822 were—

	1792.		1822.	
	s.	d.	s.	d.
Thrashing wheat, per qr.	3	6	5	0
Ditto barley, ditto	1	10	2	3
Ditto oats, ditto	1	6	1	8
Thatching, per square foot	1	0	1	6
Labourers' weekly wages	10	0	12	0
Hire of a team of three horses, with man and boy, per day	12	0	15	0

The cost of manuring—

	1792.	1822.
Dung from	3s. to 4s.	5s. to 7s.

Expense of cultivating fifteen acres of wheat in 1792 (eight folded, seven dunged):—

	£	s.	d.
70 loads of dung, at 3s. per load, cost	10	10	0
Two teams drawing out dung seven days, at 12s. each	8	8	0
Man filling 7 days, at 1s. 8d. per day	0	11	8
Ditto spreading, ditto ditto	0	11	8
Ploughing	9	0	0
Harrowing and mowing	1	8	0
Seed, five quarters	14	0	0
Harvesting and housing	6	11	3
Thrashing 37 qrs. 4 bushs., at 3s. 6d. per qr.	7	11	7
Rent £15, poor-rates 30s	16	10	0
Total	£75	8	1
Sold 37 qrs. 4 bushs., at £14 per load	105	0	0
Deduct	75	8	1
Profit	£29	11	11

Expense of cultivating fifteen acres of wheat in 1822 would amount to £109 14s. 6d., which, deducting the price of 37 qrs. of wheat sold at £14, would leave a loss of £4 14s. 6d.

By this it appears that the price of labour and manure was as follows:—

	£	s.	d.	
In 1792	58	18	1	
In 1822	79	14	6	
				£20 16 5
	£	s.	d.	
Increase of rent	10	0	0	
Ditto of rates	3	10	0	
				£13 10 0

We now proceed to the growth of barley; and with respect to the malt tax, I would suppose it to be at what it was in 1792. The price of malt was then 47s., and barley 20s. 6d. per qr.: the highest price in each case.

Subjoined is the expense of cultivating fifteen acres of barley in the years 1792 and 1822:—

1792.

	£	s.	d.	
Ploughing, at 12s. per day	9	0	0	
Seed, 6 qrs., at 29s. 6d. per qr.	8	17	0	
Harrowing and sowing	1	8	0	
Labour	3	15	0	
Mowing	2	5	0	
Thrashing 75 qrs., at 1s. 10d. per qr.	6	17	6	
	32	2	6	
Rent	15	0	0	
Poor-rates	1	10	0	
				£48 12 6
Sold 35 qrs., at 20s. 6d. per qr.				110 12 6
Deduct				48 12 6
Profit				£62 0 0

1822.

	£	s.	d.	
Ploughing	11	5	0	
Seed, 6 qrs., at 26s. per qr.	7	19	0	
Sowing and harrowing	1	14	0	
Labour	5	5	0	
Mowing	2	5	0	
Thrashing, 75 qrs., 2s. 3d. per qr.	8	8	3	
	36	16	3	
Rent	25	0	0	
Poor-rates	5	0	0	
				£66 16 3
Sold 75 qrs., at 26s. 6d. per qr.				99 7 6
Profit				£32 11 3

In the latter year the price of the best barley was 26s. 6d., and malt 58s. per quarter.

I have selected the period of 1792 as one of general reference, since it is that from which the great increase in rents, poor-rates, and general expenses may be justly dated. And here it may not be out of place to give an extract from the *Journal* of the Royal Society of Agriculture, to show the average prices of wheat per quarter during that and the following years:—

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* It is here to be understood, that the estate let at £500 a year, free of great tithes: the value of such tithes is included in the rent. Indeed, tithes are only that portion of rent which belongs to the incumbent or the impropriator.

YEAR.	PRICE. s.	d.	YEAR.	PRICE. s.	d.
1792	43	0	1808	81	4
1793	49	3	1809	97	4
1794	52	3	1810	106	5
1795	75	2	1811	95	3
1796	78	7	1812	126	6
1797	53	9	1813	109	9
1798	51	10	1814	74	4
1799	69	0	1815	65	7
1800	113	10	1816	78	6
1801	119	6	1817	96	11
1802	69	10	1818	86	3
1803	58	10	1819	74	6
1804	62	3	1820	67	10
1805	89	9	1821	56	1
1806	79	1	1822	44	7
1807	75	4			

In 1792 the average price of wheat was 43s. per quarter, but I am unable to lay my hand upon that of rye, barley, and oats. I therefore proceed to the average price of the following description of produce for December, 1821, and following months:—

DECEMBER, 1821.

GRAIN.

Per Quarter.

	s. d.	s. d.		s. d.	s. d.
Wheat	49 2	to 53 11	Oats	18 7	to 19 1
Rye	23 7	to 25 3	Beans	24 9	to 28 1
Barley	22 1	to 25 1	Peas	28 3	to 30 3

BREAD.

Best wheaten per loaf .... 10¼d.

FODDER.

Per Load.

	Hay. s. s.	Clover. s. s.	Straw. s. s.
Smithfield	60 to 80	80 to 90	26 to 32
Whitechapel	70 to 80	80 to 100	30 to 36
St. James's	60 to 84	72 to 90	24 to 31

MEAT.

(Newgate Market.)

By the carcase, per stone of 8lbs.

	s. d.	s. d.		s. d.	s. d.
Beef	2 4	to 3 4	Veal	3 8	to 5 8
Mutton	1 8	to 2 8	Pork	3 0	to 5 0

LIVE STOCK.

(Sold at Smithfield Market.)

	Beasts.	Calves.	Sheep.	Pigs.
Numbers	18,166	1,634	118,320	1,590

JANUARY, 1822.

There was little variation in grain, particularly as respects wheat and barley. Oats went off at an advance of 1s. per qr.

At Newgate Market there was a trifling reduction in beef, mutton, and pork. Veal remained the same.

MARCH, 1822.

Bread was reduced to 10d. per quartern loaf.

FODDER.

Per Load.

	£ s. d.		£ s. d.
Hay	2 15 0	to	4 4 0
Clover	3 3 0	to	4 12 0
Straw	1 6 0	to	1 14 0

GRAIN.

Per Quarter.

	s. s.		s. s.
Wheat, old	46 to 68	Oats, feeding	14 to 20
Ditto, new white	36 to 64	Ditto, brew or Poland	19 to 23
Ditto, new red	34 to 53	Beans, new tick	20 to 24
Rye	23 to 26	Ditto, old	25 to 28
Barley	18 to 28		

In APRIL the highest price of the best wheaten bread throughout the metropolis was 9½d. the quartern loaf of 4lbs. 5½ ozs.

In mutton there was a slight increase, and a reduction in veal. Lamb sold at 6s. to 8s. per stone.

In MAY hay advanced to 66s. to 80s., clover 75s. to 87s., and straw 26s. to 36s. per load. Pork was reduced to 2s. 8d. to 4s., and lamb to 4s. to 5s. per stone.

On JUNE the 7th bread and wheat remained as per last. Barley, beans, and peas rather increased.

The price of meat was as follows:—

Per stone of 8lbs.

	s. d.	s. d.		s. d.	s. d.
Beef	2 0	to 3 4	Veal	2 8	to 4 4
Mutton	2 0	to 3 4	Pork	2 0	to 4 0
Lamb	3 8	to 5 0			

Average price of wheat in December, 1856, was 59s. 8d. per quarter. Between that month and September, 1857, the lowest price was 53s. 2d. in April, and 62s. 7d. in July, 1857.

The price of meat for the same period was as follows:— Beef, prime large ox, 4s. 2d. to 4s. 8d.; mutton, prime Southdown, 4s. 10d. to 5s. 10d.; pork, neat small porkers, 4s. 8d. to 5s. 2d. per stone.

MALT AND HOPS.

As the main staple in the production of our malt liquors is grain, the statistical parliamentary papers recently issued relative to brewing and distillation are deserving of notice and analysis. One return issued last month furnishes us with details of the number of persons engaged in brewing, or in the sale of beer. From this statement we learn that there are in the United Kingdom 2,453 licensed brewers, of whom 2,217 are in England. 83 of these carry on business in London. Manchester stands first in the number of provincial brewers, 102 being returned for that district; Cambridge ranks second, having 92. Then follow Surrey, 79; Liverpool, 77; Durham, 76; and Hants, Hull, and others gradually smaller. Passing to Scotland, we find there are 129 brewers, the principal locations being Edinburgh and Stirling—21 each; Haddington, 16: then follow Ayr, Dumfries, Aberdeen, &c. Ireland has 107 brewers: of these 14 carry on business in Dublin, 12 at Naas, 9 at Newry, and 8 at Waterford. But besides these brewers *par excellence*, we have in the United Kingdom 91,484 licensed victuallers, of whom 25,143 brew their own beer. About 39,600 beer retailers, who are licensed to sell their beer to be drunk on the premises, and of these 12,000 make their own beer; and 820 out of 2,743 beer-shop keepers, who have no licences for drinking on the premises, also brew beer. Last year's return shows a slight decrease on these numbers, the licensed brewers being only 2,416, but the victuallers have run up to 92,065, and those licensed to sell beer to be drunk on the premises to 39,789.

We come now to speak of the quantity of malt used by these several classes, which in the excise year ending 10th of October last, was as follows, in round numbers by

	Bushels.
Brewers	26,000,000
Victuallers	7,400,000
Beer retailers	3,200,000
Total . . .	36,600,000

A second return, however, places the consumption of malt in another shape, giving the whole consumption of malt for the year, in the kingdom, at 4,556,643 qrs. Of this quantity, 4,161,471 qrs. were used by brewers and victuallers, and 394,172 qrs. by retail brewers, while 677,134 qrs. were used for distilling purposes and exportation, and therefore under the 18th and 19th Vic. cap. 94, were free of duty. The proportionate consumption of malt in each country was as follows:

England	4,142,587 qrs.
Scotland	153,565 ,,
Ireland	260,491 ,,

Now, taking the average of a quarter of malt for 3 barrels of beer, we get at the quantity of ale and beer relatively made in each country, which would be for

England	12,427,761 barrels.
Scotland	460,695 ,,
Ireland	781,473 ,,
Total . . .	13,669,929 ,,
Equal to	492,117,447 gallons.

Deducting the exports of last year from this, we have 476,458,131 gallons left for home-consumption, which, if equally divided over the whole population of say 28,000,000, would give a proportion of 17 gallons per head as the average annual consumption. But Ireland and Scotland drink but a small quantity of malt liquors.

Viewed relatively in the proportion of malt made, the consumption of beer and ale per head would be as follows, in the three countries, after allowing for the beer exported, which we will even assume to be all English make:

ENGLAND.—Malt made (deducting therefrom that required for the beer exported), 4,520,000 quarters; this would give a proportion of 28 gallons per head of the population per annum.

IRELAND.—Malt made, 219,866 quarters, equal to 659,598 barrels of beer; or about 5 gallons per head to the population.

SCOTLAND.—No certain criterion can well be arrived at, since a greater portion of the malt made there is used for distilling purposes; but if we were to take half the quantity as used for beer (which we may fairly do) we shall find that the relative consumption of beer per head in Scotland is about 7 gallons per annum.

Belonging properly to this inquiry would be the corresponding amount of spirits drunk in each country; but in this investigation we are confining ourselves to the malt liquors, leaving distilled spirits for another review. The progress of malt consumption has declined, rather than increased, in the last quarter of a century, as the following figures will show:

BUSHELS OF MALT CONSUMED.

1821 . . .	27,889,210
1835 . . .	42,392,432
1850 . . .	40,744,752
1857 . . .	40,298,513

This decrease would seem to arise from a greater degree of temperance in the consumption of fermented and distilled beverages, for it is not counterbalanced by any increase in the manufacture of British spirits, or in the imports of wines and foreign spirits. The value of the beer and ale exported has largely increased, keeping pace with the emigration of our countrymen. The value has risen from £229,824 in 1835 to £558,794 in 1850, and £1,592,130 in 1857.

Compared with other countries, our drinking propensities, thirsty souls as we are represented to be, is exceedingly moderate. Although our consumption of beer is comparatively large, yet ardent spirits is proportionately less indulged in than in many countries. Five thousand gallons of distilled liquors are stated to be used daily in California, or the sixth of a gallon per head per diem. In New South Wales the consumption to each man, woman, and child is 3¼ gallons of spirits, 2¾ gallons of wine, and 6 gallons of malt liquor per annum; in Victoria 6⅓ gallons of spirits, 3 gallons of wine, and 4 gallons of malt liquors; while in Tasmania it is about the same. In the United Kingdom the average consumption per head is about one gallon of spirits, a quart of wine, and 17 gallons of beer.

In the United States, the proportion of grain used for malting and distillation, according to the last census, was as follows in round numbers: 11,000,000 bushels of distilled Indian corn, or in the ratio of 1 in 54 to the whole crop; 3,200,000 bushels of rye, or 1 in 5 bushels; 57,000 bushels of oats, or 1 in 2,618 bushels; barley malted 3,788,000 bushels, or 3 in 5 bushels, and 1,294 tons of hops malted. The products from these were 44,134,000 gallons of whiskey, 6,500,000 gallons of rum, and 1,778,000 gallons of ale; and considerable quantities of beer, wine, and spirits are also imported.

There are two other Parliamentary returns bearing on the subject under notice, which relate to the culture and trade in hops. By one of these, we find that the number of acres under culture in hops last year was 50,975, and that 47,717,561lbs. were charged with duty; the total sum realized being £417,526, at an average of £8 3s. 9d. per acre. The exports of British-grown hops last year amounted to 1,450,104lbs., and of foreign hops 375 cwts. We imported of foreign hops, in 1857, 18,711 cwts., of which 14,426 cwts. were entered for home consumption at the duty of £2 5s. the cwt.; and there were in bond on the 1st of January this year 9,873 cwts. of foreign hops.

NUTRITION OF PLANTS.

INFLUENCE OF THE PHOSPHATE OF LIME OF MANURES UPON VEGETABLE PRODUCTION.

Translated expressly for the "Mark Lane Express" from the French of Boussingault.

By F. R. de la Trehonnais.

In a paper communicated to the Academy of Sciences at the meeting of the 11th of May last, I showed the influence which the soluble nitrogen of manures exercises upon vegetable production, when it is united with phosphate of lime and alkaline salts; but to appreciate completely the importance of calcareous salt, there remained to determine how a nitrogenous manure would act upon vegetation without the help of phosphate of lime. To clear that point, I have cultivated plants in a soil of pure and calcined quartz, to which had been added either nitrate of potash or carbonate of ammonia, taking care to remove every trace of phosphate.

As the cultivation of these plants was to take place in the open air, it was necessary to determine the share which the soluble nitrogenous principles of the atmosphere should bring into the results, by cultivating comparatively in a soil destitute of organic matters the same kind of plants which were to be grown with the exclusive help of the nitrate of potash or the ammoniacal salt. I took advantage of that necessity to study with the greatest attention the gradual development of Helianthuses, when, on account of the absolute bareness of the soil upon which they grew, they absorbed from the atmosphere all the elements of their organization.

I showed in my first paper, that in such conditions of existence, a plant, endowed at first with a certain vigour, rapidly fades and declines as soon as the cotyledons are withered; then the green parts become discoloured, the leaves that first opened fading away as soon as new ones appear. From that time it is easily perceived that new organs are formed at the expense of others that wither and die. These are the true signs that there is no manure in the soil. It appeared to me interesting to determine the weight of the matter developed at the various phases of that languishing and sickly vegetation in a plant, whose diseased condition is not perhaps without some analogy to that languid state to which young animals are reduced from want of proper nourishment.

First Experiment.—*Vegetation of Helianthuses in the Open Air, in a Soil of Calcined Quartzy Sand, containing Phosphate of Lime and Vegetable Ashes.*

Four flower-pots, previously washed and calcined at a red heat, were filled up with the prepared soil. In each of them, No. 1, No. 2, No. 3, No. 4, two seeds of Helianthuses, weighing 1·732 grains, were deposited.

Twenty-one days after, the plants were about 3 inches in height; the two first leaves were developed; the second leaves commenced to appear; the cotyledons were of a pale green colour.

The plants in pot No. 1 were removed: after being dryed, they weighed 4·7275 grs. The two plants, the flower-pot, and the soil were then analyzed, and the following quantities of nitrogen were found.

	Nitrogen. Grains.
In the two plants	0·05115
In the soil	0·00279
Total	0·05394
In the seeds there was	0·05146
Gain in nitrogen during twenty-one days of vegetation in the open air, by the two plants	0·00248
Gain by a single plant	0·00124

After thirty-one days' growth, the plants remaining in pots Nos. 2, 3, and 4 were about 4 in. high. The second leaves were developed; the cotyledons discoloured and withered; the third leaves were spotted at their extremities.

The plants in pot No. 2 were removed, and after being dried, weighed 6·0450 grs. The soil and the plants were analyzed as before, and gave the following results:—

	Nitrogen. Grains.
In the two plants	0·05015
In the soil	0·01829
Total	0·06844
In the seeds there was	0·05146
Nitrogen gained in thirty-three days of vegetation in the open air, by the two plants	0·01698
By one single plant	0·00849

After fifty-two days, the Helianthuses No. 3 and 4 were, the one 6 the other only 5½ inches high. The first leaves were withered; the second leaves much spotted; the third leaves were already 2·16 eighths of an inch long.

The plants of pot No. 3 were removed; on being dried up they weighed 7·13 gr.

Analysis as above showed the following results:—

	Nitrogen.
In the two plants	0·052545
In the soil	0·031155
Total	0·083700
There was in the seeds	0·051460
Nitrogen gained in fifty-two days of vegetation, by the two plants	0·032240
By one plant	0·016120

After seventy-two days the remaining Helianthuses, in pot No. 4, had reached a height of 5½ inches. The first and second leaves were entirely withered. The third leaves were much spotted, and of a pale green colour; the largest was about 1¼ inch long and ⅜ inch broad. The fourth leaves, still very small, surrounded a floral bud.

On being dried up, these plants weighed 6·51 gr., something less than plants in pot No. 3, removed twenty days before; whence it may be concluded, that during that interval the Helianthuses had made but very little progress indeed.

Analysis as before brought out the following results:—

	Nitrogen.
In the two plants	0·05394
In the soil	0·01705
Total	0·07099
There was in the seeds	0·05146
Nitrogen gained in seventy-two days' vegetation, by both plants	0·01953
By one single plant	0·00976

These results, identical with those obtained by the experiments made in 1856, corroborate the fact, that in the open air, in a soil where there are only phosphates united to other mineral salts, a plant grows with a certain vigour only in the first period of vegetation, as long as the nitrogenous constitutional substance of the seed suffices to the formation of the organs. Beyond that limit, the plant becomes languid and sickly, and rather a substitution than an increase of organization is observed.

This is clearly seen in the following tables, in which are stated the facts I have just explained.

SUCCESSIVE DEVELOPMENTS OF THE HELIANTHUSES IN A SOIL DESTITUTE OF NITROGENOUS MANURES, AND CONTAINING PHOSPHATE OF LIME AND VEGETABLE ASHES.

Age of the plants.	Weight of the plants dried up.	Weight of the plants dried up, assuming the seed to weigh 15·5	Vegetable matter elaborated containing 6·20 grs. of Carbon.	Carbonic acid decomposed by the plants in 24 hours.	Absorbed by the plants from the atmosphere during vegetation.	
	grains.	grains.	grains.	Cubic 8ths of an inch.	Carbon. Grains.	Nitrogen. Grains.
No. 1. 21 days	4·65	40·30	2·852	20·54	1·147	0·0031
2. 33 „	6·04	52·70	4·247	19·27	1·705	0·0186
3. 52 „	7·13	62·00	5·332	15·16	2·139	0·0325
4. 72 „	6·51	57·35	4·712	9·79	1·891	0·0186

SECOND EXPERIMENT.—*Vegetation of Helianthuses in the open air, in a soil of Calcined Sand, containing no Phosphate of Lime, and being manured with Nitrate of Potash only.*

In flower pots, previously heated to a red heat, some granulated calcined white quartzy sand was placed, mixed with some nitrate of potash.

In the flower-pot No. 1, weighing 3332·5 grs., were put—

Quartzy sand	10,230 grains.
Nitrate of potash	4·65 put in at once.

Into the flower-pot No. 2, weighing 9300 grains, were put—

Quarry sand	23,25017 grains.
Nitrate of potash	·5 successively put in.

In each of the pots two seeds of Helianthuses weighing 1·798 grains were placed: they were watered with water perfectly pure.

Seventeen days after, the two first leaves were formed, and the second were already visible.

After *thirty days*, the second leaves were developed. All the plants appeared strong and healthy; the cotyledons had a dark greenish hue. Nevertheless, black spots were already visible at the extreme ends of the first leaves. It was from this symptom that I thought it advisable to examine the plants, because it showed that they were about to enter into the period of decadence.

The plants of pot No. 1 were dried up, and they weighed 18·0885 grains.

The analysis indicated the following results:

		Nitrogen.
In both plants		0·367815
In the soil and the pot, nitrate 1·7856 equivalent to		0.247225
Total of nitrogen found		0·615040
There was in the two seeds	0·057660	0.701220
In the 4·65 of the nitrate added	0·643560	
Loss of nitrogen in thirty days' vegetation		0·086180

The land did not contain any carbonate of potash.

Within a fraction I found in the plants the nitrogen which had been supplied in the nitrate and the seeds.

It is interesting to compare Helianthuses grown under the sole influence of nitrate with the same plants of the same age which had been grown in 1856, in a soil mixed up with nitrate and phosphate of lime.

	Stems.	Leaves.
In 1856, soil with nitrate and phosphate	10 to 12 in.	2¼ in
In 1857, soil with nitrate only	2¼ in.	4¼ in.

It is not doubtful that the absence of phosphate of lime in the soil had checked the progress of vegetation; but it is quite evident that, alone, nitrate of potash had produced a better effect upon the development of the Helianthuses than phosphate of lime added to the soil without the concurrence of a manure containing soluble nitrogen. To prove it, it is only requisite to compare the results furnished by the plants No. 2, of the first experiments, which had nothing but phosphate, with those which I have just mentioned.

	Dry weight. Grains.
Helianthus No. 2, thirty-three days old	5·115
Three and four-tenth times as much as the seed.	
Helianthus No. 1, second experiment, 30 days old.	18·088
Ten times as much as the seed.	
No. 2 took of carbon from the atmosphere	1.705
No. 1 took of carbon (second experiment)	6·510

On the fiftieth day, the stems of the remaining Helianthuses No. 2 (second experiment) were 3⅛ to 3⅜ inches respectively in height. The cotyledons were withered; the first leaves almost faded. The plants had a sickly look.

On the seventy-second day, the plants were 4½ and 8 inches high respectively. All the leaves, with the exception of the fourth, were either faded or greatly spotted; the fifth leaves were just appearing, and one of the plants, the highest, bore a little flower. The other plant had nothing living but the stem; it was evidently on the point of dying. It was that circumstance which decided me in bringing the experiment to a close.

After drying up the plants, both were found to weigh 18·2125 grains, about 0·155 grains more than the Helianthuses No. 1, when they were one month old.

The analysis showed the following results:

	Nitrogen Grains
In both plants	0·24862
I had placed into the soil nitrate 17·05, equal to	2·35972
Nitrogen from the nitrate not assimilated......	2·11110

In seventy-two days, these Helianthuses absorbed from the atmosphere only 6.572 grains of carbon. Here, again, I am induced to attribute this languid state, which was manifested in the vegetable life of the plant even from its earlier growth, to the fact that it did not find in the soil any phosphate of lime, for it must have been developed with the help of the small portion of that substance always contained in the seed. In fact, there is no seed in which are not found, at the same time, although in limited proportions, the essential agents of manure—phosphates and soluble nitrogen.

We can, besides, form an exact idea of the utility of phosphates for the development of organism when it is allied to a nitrogenous manure, by comparing the vegetable matter formed by the plants which have grown with the co-operation of a complete manure, as in the experiments of 1856, with those that were developed under the action of a nitrogenous manure from which phosphates were excluded:—

DEVELOPMENT OF HELIANTHUSES UNDER THE INFLUENCE OF A NITROGENOUS MANURE, WITH AND WITHOUT THE ADMIXTURE OF PHOSPHATE OF LIME.

Manure put into the Calcined Soil.	Age of the Plants.	Height of the Stems.	Weight of the dried-up Plants.	Weight of the Plants (the weight of the seeds being 15½ grains).	Carbon fixed.	Carbonic Acid decomposed by the Plants in 24 Hours.	Albumen formed by the Plants.
	Days.	Inches.	Grains.	Grains.	Grains.	Cubic Eighths of an Inch.	Grains.
Saltpetre, phosphate, and vegetable ashes	86	28½	328·91	2969	130·82	375·12	16·12
Saltpetre alone	72	7½	182·25	155	6·51	34·76	1·55

I have verified this result, which demonstrates the insufficiency of soluble nitrogen when it operates without the help of phosphate, by adding to the soil a manure other than saltpetre. I selected carbonate of ammonia, because it is always found in stable manures.

THIRD EXPERIMENT.—*Vegetation of the Helianthuses, in the open Air, in a Soil destitute of Phosphate of Lime, and being manured with Carbonate of Ammonia.*

The soil weighing 12400 grains was formed of a mixture of white sand and fragments of bricks. These substances, like the flower-pot,* had been calcined. After having damped the soil with pure distilled water, the seeds of the Helianthus were sown in it: they weighed, together, 1·798 grains. When germination was accomplished, I began to introduce, every time the soil was watered, a certain quantity of carbonate of ammonia, by pouring a solution of a determined quantity.

On the seventeenth day the first leaves were formed. Like the cotyledons, they were of a very deep green colour.

On the twenty-seventh day the plants were 2¾ inches high; the cotyledons were discoloured. The second leaves were developed; and indication of the third leaves was just discernible, but, already, several black spots were visible upon the first leaves.

On the seventy-fourth day the highest stem was 6 inches high; the first and second leaves were withered, the third leaves were spotted, the fourth and the fifth of a beautiful green colour. A floral bud, small but very well formed, was visible.

The two plants weighed, when dried up, 17·515 grains.

During the cultivation I had introduced into the soil 1029·16 cubic eighths of an inch of solution of carbonate, containing 29·1245 grains of soluble nitrogen.

The analysis indicated in the two plants 0·6466 gr. of nitrogen.

The dried-up plants weighed between ten and eleven times as much as the seed.

There had been 15·717 gr. of vegetable matter formed, in which there were 6·923 gr. of carbon assimilated in seventy-four days, which indicates that upon an average, in every twenty-four hours, the plants had decomposed 34·76 cubic eighths of an inch of carbonic-acid gas. This is exactly what had happened with the Helianthuses grown under the sole influence of saltpetre, and this coincidence is very remarkable. There is, however, between the two results a difference which is not less extraordinary; and that is, that the Helianthuses grown under the influence of saltpetre have fixed 0·268 gr. of nitrogen, whilst those that grew under the influence of carbonate of ammonia fixed 0.651 gr., nearly three times as much—a very singular constitution, since the result is that one hundred parts of the dried-up plant contain 3·67 gr. of nitrogen, that is more than is contained in one hundred parts of the seed. This is the first time that in the course of my researches I have observed such a fact. Constantly does the whole of a plant furnish, under analysis, a less quantity of nitrogen than the seed; and the difference has always been so much the more remarkable, as the plant was more developed, from the reason that it had elaborated more cellular tissue, pectic produce, oily matter—in one word, more principles in the constitution of which there is no nitrogen. I cannot explain this anomaly, for this is one undoubtedly to admit, that which is after all pretty probable, that carbonate of ammonia is apt to act two perfectly distinct parts in the chemical phenomena of vegetation.

In the one, it would act in supplying the plant with soluble nitrogen, it would then concur like the nitrates in the formation of the albuminous matter of the tissues; in the other it would intervene in the same manner as mineral manures, acting as an alkaline carbonate—as, for instance, carbonate of potash—its base uniting with vegetable acids to constitute ammoniacal salts. In the conditions in which the Helianthuses were grown, there could not be any other salts there. Ammonia was the only alkaline substance which they could absorb. Thus, in this hypothesis, which I will certainly investigate as soon as circumstances will admit, the strong proportion of nitrogen found in the Helianthuses would have two causes: a part would come from the albuminous matter, the other from ammoniacal salts. I will add that it is not indispensable that plants be manured with ammonia, exclusive of any other alkali, that they may contain ammoniacal salts; it is sufficient that they grow in land strongly manured with stable dung: and I apprehend that crops stimulated with fermented human dejections, in which carbonate of ammonia is dominant, must contain a very notable proportion. I have repeated upon hemp plants the experiments made upon Helianthuses.

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* The flower-pot made in Paris, notwithstanding its being calcined, still retained some nitrates, equal to 0·0031 grain of nitrate of potash.

Fourth Experiment. — *Vegetation of Hemp Plants, in the open air, in a soil destitute of Organic Matter, and containing Phosphate of Lime and Vegetable Ashes.*

Doses of nitrogen in hemp seeds.

	Gr.	Nitrogen.	Per-centage.
In 7 seeds, weighing ..	2·8675..	0·105555....	3·721
In 42 seeds, weighing ..	14·3220..	2·055915....	3·712

Seven seeds, weighing 2.8675 gr., were sown into white granulated calcined sand, contained in a flower-pot equally calcined, and manured with 30.10 gr. of phosphate of lime, and 4.65 gr. of vegetable ashes.

On the thirteenth day the cotyledons had lost their colour; the highest stem was not more than 1 inch and three-sixteenths in height; the first leaves were developed.

On the fiftieth day the male plants, 5½ inches high, had each preserved four leaves; the inferior leaves were withered. The female plants were only 1½ inches high. All were covered with flowers; upon one of them four small but well-formed seeds were found.

These seven limit plants weighed, on being dried up, 4.7275 gr.—not quite double the weight of the seeds planted.

		Nitrogen found.	Nitrogen. grains.
In the seven plants was found..................			0.063395
The sand weighed	4877.850 gr.		
The flower-pot	3360.400 gr.		
	8238.25 gr.		
The fourth	2059.64 gr.	0.025265 gr.	
The tenth	823.82 gr.	0.010230 gr.	
In	2883.46 gr.	0.035495 gr.	
In the total..........	8238.25 gr.	....	0.101370
In the crop			0.164765
In the seeds			0.106795
Gain in nitrogen after 50 days' vegetation........			0.057970

Each *limit* hemp plant had, then, acquired in fifty days' vegetation 0.00775 gr. of nitrogen, equivalent to 0.0465 of albumen; and, from the amount of vegetable matter elaborated, this plant, the weight of which did not exceed 0.682 gr., must have decomposed on an average, and per day, 0.918 cubic eighths of an inch of carbonic acid gas. The dried-up *limit plant* contained 1.23 per cent. of nitrogen; and it is very remarkable that, as I found it in a hemp plant taken from a field, there should be in a full-grown plant nearly the same proportion of nitrogen, viz., 1.52 per cent.

Fifth Experiment.—*Vegetation of Hemp in the open air, in a soil destitute of Organic Matters, containing Phosphate of Lime, Vegetable Ashes, and, as a nitrogenous manure, some Nitrate of Potash.*

The soil, formed of white and granulated quartz sand, had been washed and calcined. The flower-pot weighed 3332.5 gr. With the sand were mixed the following substances:—

Phosphate of lime................	1.50 gr.
Vegetable ashes	3.10
Nitrate of potash	10.85

After having watered with pure water the sand, which weighed 10850 gr., five hemp seeds were sown, weighing 2.046 gr., and in which there must have been 0.06795 gr. of nitrogen.

On the forty-third day the highest stem (male) was about 12 inches high, the shortest (female) 7½ inches. The five plants bore flowers; upon one of them green seeds were seen.

After being dried-up, the plants weighed—

Leaves and blossoms............	11.8575 gr.
Stems........................	7.3625
Roots........................	9.7650
	28.9850

From an analysis made of half the crop, I came to the conclusion that—

		Nitrogen. grains.
The whole 28.9850 gr. contained		1.67450
There was found in the soil 6.394525 gr. nitrate, equal to		0.88505
Nitrogen found		1.55955
The soil had received 10.85 gr. nitrate, equal to nitrogen	1.50164 gr.	
The seeds contained................	0.07595	
		1.57759
Difference		0.01804

It is seen from the above table that the nitrogen brought by the nitrate was found again, both in the plants and in the soil.

Under the influence of a manure containing soluble nitrogen, such as saltpetre, the assimilation of carbon was much more apparent than when the plants were supplied with phosphate of lime only. In one month and a-half the five hemp plants had elaborated 26.939 gr. of vegetable matter, in which there were 10.7725 gr. of carbon; so that, on an average, and *per diem*, 11.85 cubic inches of carbonic-acid gas had been decomposed.

To complete the programme which I had drawn for myself, there still remained to examine what would be the development of hemp plants having for manure a nitrogenous matter alone, without the concourse of phosphate of lime.

Sixth Experiment.—*Vegetation of Hemp in the open air, in a soil containing only Carbonate of Ammonia.*

Seven hemp seeds, weighing 2.8675 gr., were sown into 10850 gr. of calcined quartz sand. After the appearance of the cotyledons, the plants received known quantities of carbonate of ammonia in solution, which were applied every time the soil was watered.

On the twenty-fifth day the tallest of the stems was 2⅜ inches high; the cotyledons were withered.

On the thirty-seventh day the tallest stem was 5⅛ inches high; the blooming was very forward.

On the forty-ninth day seeds were formed; the tallest stem was 5½ inches high; the shortest about 4 inches.

The plants, after being dried-up, weighed 11.8575 gr. —a little more than four times the weight of the seeds.

There was found in the crop—nitrogen, 0.35805 gr.

In the course of the experiment there had been poured into the soil 563.80 cubic eighths of an inch of a solution of carbonate of ammonia, containing 19.53 gr. of alkali, or 16.12 gr. of soluble nitrogen.

Thus, under the action of a nitrogenous manure, and without any phosphate in the soil, the five hemp-plants fixed only 0.3565 gr. of nitrogen, having within their reach so much as 16.12 gr. The carbon assimilated in seven weeks' vegetation did not exceed 3.596; and, *per diem*, on an average, there were only 28.44 cubic eighths of an inch of carbonic-acid gas decomposed by the leaves.

As was the case with the helianthuses grown under the same influences, the proportion of nitrogen acquired by the plants was abnormal—3.06 per cent. of dried matter—that is to say, nearly the same quantity as had been found in the seed. There is no doubt that the carbonate of ammonia acted as a nitrogenous manure, and also as an alkaline carbonate; and, consequently, there were ammoniacal salts, with organic acids, formed during vegetation.

The experiments made upon hemp-plants have, then, led to results entirely similar to those obtained from the cultivation of helianthuses grown in precisely similar conditions. I have resumed these results in the following table, in which, in order to make the comparison easier, I have calculated the fifth observation as if it had been made upon seven hemp-plants:

VEGETATION OF SEVEN HEMP-PLANTS.

SUBSTANCES ADDED TO THE SOIL.

	Fourth Experiment.	*Fifth Experiment.*	*Sixth Experiment.*
	Phosphate, Ashes.	Phosphate, Ashes, Saltpetre.	Carbonate of Ammonia.
Duration of vegetation..	30 days	43 days	49 days
Weight of the dried - up plants	4.7275 gr.	40.5790 gr.	11.8575 gr.
Proportion between wght. of seeds & that of crop	1 : 1.6	1 : 14.2	1 : 4.1
Vegetable matter elaborated ..	1.8916 gr.	37.7115 gr.	8.9900 gr.
Carbon fixed	0.7595 gr.	15.0815 gr.	3.5960 gr.
Carbonic acid decomposed in 24 hours	6.32*	132.72*	28.44*
Remarks	Flowers and seeds	Flowers and seeds	Flowers and seeds

* Cubic eighths of an inch.

CONCLUSIONS.

In the first part of these investigations, it was demonstrated that phosphate of lime acts favourably upon plants only when associated with matter containing soluble nitrogen, which I thus call, to distinguish it from the free nitrogen of the atmosphere, which plants do not assimilate directly. In this second part, it has been established that a substance rich in soluble nitrogen acts, however, as a manure only with the co-operation of phosphates; and that if, indeed, a plant under its influence takes more development than when it grows under the sole influence of phosphate, it never reaches to a normal and full growth. Besides, this notion of the necessity of the two fertilizing agents in a manure is now admitted; it has very felicitously contributed to remove fraud from a kind of trade which interests the rural population in the highest degree. I may be permitted to state, that this notion was introduced into science nearly twenty years ago by M. Payen and myself.* I should not then have thought it necessary to undertake new researches to corroborate an opinion so generally accepted, if I had not particularly had in view to appreciate, to measure, so to speak, the useful effect which is exercised upon vegetation by certainly the two most efficient elements of manures—the nitrogen combined in nitrous or ammoniacal compounds, and the phosphoric acid, with which phosphates are constituted.

BOUSSINGAULT.

Member of the Academy of Sciences, and of
the Central Agricultural Society.

LINCOLNSHIRE SHEEP AND SOMERSETSHIRE GRAZIERS.

SIR,—Several Somersetshire and west-country farmers of eminence were at Lincoln Great April Sheep Fair to see a breed of sheep stated to be second to none for profit, and which statement they believed to be correct, after seeing the great show of sheep at the said fair, it having struck them with admiration and amazement to see such a vast weight of wool and mutton per head at early maturity. A vast number of the said sheep were bred upon Lincoln-heath and the Lincolnshire Wolds, which a few years back let at 2s. 6d. per acre, as great rabbit warrens. Taking the vast number into consideration, from 60,000 to 70,000 sheep. The principal part of them hoggs, and making a great deal of mutton and wool per acre, it of course must leave a great profit to the breeders of them. The Somersetshire gentlemen returned to their county perfectly satisfied that the Lincolnshire sheep were second to none for profit. And profit is what every farmer ought to aim at, there being no merit without profit. SAMUEL ARNSBY.

Millfield, Peterborough

THE ADVENTURES OF A SEED.—Nature has arranged that plants growing even in the burning desert shall be provided with enough of water for the generation of their seeds; and one of the most remarkable instances of this fact is furnished by the Anastatica Hierochuntica, or rose of Jericho, which grows in the arid wastes of Egypt, Palestine, and Barbary; upon the roofs of houses and among rubbish in Syria; and in the sandy deserts of Arabia. This little plant, scarcely six inches high, after the flowering season loses its leaves, and dries up into the form of a ball. In this condition it is uprooted by the winds, and is carried, blown, or tossed across the desert into the sea. When the little plant feels the contact of the water, it unfolds itself, expands its branches, and expels its seeds from their seed vessels. The seeds, after having become thoroughly saturated with sea water, are carried by the tide and laid upon the seashore. From the seashore the seeds are blown back again into the desert, where, sprouting roots and leaves, they grow into fruitful plants, which will in their turn, like their ancestors, be whirled into the sea. These regular periodical processes of the life circle of this wee rose struck the simple imaginations of the men of old with superstitious awe, and they invested it with miraculous virtues. —*Dickens's Household Words.*

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* Payen and Boussingault: "Annals of Chemistry and Natural Philosophy." Third series. Tom. iii. & vi. We find in these papers—"Although recognizing the importance, the absolute necessity, of nitrogenous principles in manures, we are far from thinking that these principles are the only useful ones to the improvement of the soil. It is certain that several calcareous and earthy salts are indispensable to the development of vegetables."

THE FARMER OF MODERN TIMES.

It used to be rather a difficult matter to draw the farmer out. He had something like a positive terror of appearing in print, and would look cautiously round a room to see that the newspaper people were *not* there. His business was consequently something of a secret. He made it at home, and he kept it there. The very leaders of those days were terribly mysterious. The breeder of an improved kind of sheep or beast considered it his first care to keep his discovery all to himself. No doubt he would at once have taken out a patent for it had this been possible. The stranger visitor was always regarded with something of suspicion; and the great fond aim of our friend's heart was, to be left alone. He did not want to meddle with other persons' business, and he certainly did not want them to interfere with his. He went to his weekly market, his rent audit, and on rare occasions, perhaps, to a comparatively far-distant fair. But as a rule his practice was still the same—to stop at home and mind his own business.

The farmer of more modern times is an altered man. He goes abroad to mind his own business. He speaks not only face to face with the reporters, but writes, himself, many a letter to the papers—and this all about his own vocation, too. Then, he is always asking you to come and look over his place, and to see how he is getting on. He has some new process of cultivation, which he should like others to try as well as himself. Or, if you really admire his stock, he will show you, in the Herd-Book, or from some less public record, how they are bred, and how he brought them to what they are. So that, instead of being a mystery or a secret, the practice of agriculture is gradually becoming the most open-handed business under the sun. There is no man but who may learn something about it if he so chooses. Look only at "the event" of this last week—the gathering at Babraham. No one could have attended it without "learning something"—not merely of sheep, but almost equally of short-horn cattle, and a superior system of cultivation. The wheat crop at Babraham of this year is itself a sight to see.

The plain truth is, that we have been opening and expanding our minds as well as our doors. A secret at best is rarely more than the ideal strength of ignorance and meanness. The farmer is fortunately getting fast beyond this, while we trace his emancipation to the influence of one great cause. It is the inter-communication afforded by the establishment and success of our Agricultural Societies that has almost altogether conduced to such an advancement. Nothing less could have accomplished it. A district sheep-shearing, or a local celebration of the rites of Ceres, however good or useful in the way of precedent, would lack this very essential of intercommunication. You must by the action of some general principle draw men away from themselves, as it were. If you merely ask one up to the Hall, or into the next parish, to tell him this is a very good system, and that these are very fine animals, he will cross his hands, and fall back at once into "As you were." There is a famous Club in London, to which no one is eligible to be elected until he has been so many hundred miles away from it. We are beginning to apply much the same proviso to our Agricultural Institutions. If you expect a man to farm well in this quarter, you start him to see how they do it in another.

But then, again, the golden rule for good and profitable farming is that it is a business that requires perpetually looking after. Above all, you must see to it yourself. The fine gentleman who gives his bailiff an audience once or twice a-week, and rides over his occupation when he has nothing else to do, cannot expect to make much of it. 'Tis at best but a coy maid, who yields her favours to him only who is constant to her. Here, then, are we on the horns of a dilemma. Agriculture is a tarry-at-home trade, and yet we must go abroad to perfect ourselves in it. But there is a time for all things, and by availing ourselves of proper opportunities the two may be no such contradiction after all. At least, if they be, we stand not quite alone in our misinterpretation.

The great aim of the "West of England Journal" would appear to be this drawing of farmers out. We do not say so much, perhaps, away from their homes, as to talk and write about matters relating to their own condition. Like most things, moreover, connected with the management of the West of England Society, the attempt has succeeded. In short, straightforward, unpretending papers—just such, in fact, as they should be—the agriculturists of the district have become contributors to their own organ and authority. In the new number, for instance, amongst many similar articles, a farmer strings together a dozen practical hints for young farmers. He speaks to choice—entry—size—plant—capital—in-coming payments, and so on. He quotes facts and figures in support of his precepts, and he finishes with this very memorable moral: "*Supervision.*—The necessity for supervision makes it imperative on the young farmer—no talents will make up for the want of it: it is the real secret, the key-stone to successful farming: without it, nothing goes on well: not only is less done, but it is not done so well. Where was it known that a man farmed well if he was much from home? The diligent, watchful, enterprizing farmer is sure to get on, sooner or later. He is recognized as such, and will be valued accordingly. No matter how good the farm, or how easily managed it is; if a farmer goes much from home, and trusts to his servants, the whole establishment will get into confusion—ruin; while, if a different line of conduct had been pursued, all would have been well—a thriving concern—and the farm itself the best of all "Hints to the Young Farmer."

This reads hard and plain, abounding in good advice, and, if taken literally line for line, might keep the young farmer at home all his life. But who is the gentleman who wrote it? And where is he? It is the well-known Mr. Robert Smith, of Exmoor, who, as we take it, is for these passing eight or ten days, busily engaged in fulfilling his honorary duties at Chester, as one of the stewards of the yard—Who has been judge or steward at such meetings, to his credit be it said, as often perhaps as any man in England—and who as a consequence cannot have been quite so much at home as he might have been. But we will construe Mr. Smith's counsel a little more liberally, and assume that he himself is not a worse, but a better farmer, for all this going about. Did he ever attend a meeting without gaining some useful "hint" from it? And has he not often done a good deal more when he got back home, than he might have done had he never left it?

Fortunately for us all, there is no rule without an exception, and the man that attempted it would cut the ground from under him ere he had gone half-a-mile. Even Mr. Smith speaks of "the leisure hour," and quotes Arthur Young for the maintenance of such a holiday:—"July is the month for the young farmer to look about him—to see other farms and farming." Let us as unconditionally accept the edict. This is July. The great meeting of the year is on, and let the young farmer look about him.

It is a mere truism to say these gatherings cannot flourish without him. But even more than this, they cannot do all the good they might for him without his actual presence and influence. Ask the implement-maker from whom he receives the most useful hints, amendments, and corrections? He will tell you fairly at once, "From the farmer himself." Who is it that prompts the landowner to introduce better stock into the neighbourhood? Who is at his side, to advise and direct him? Corn may not be quite so high as it should be, the Missis may grumble at the money he spends away from home, but the farmer who does not neglect his own business will be at the Chester Show.

THE SORGHO, OR CHINESE SUGAR-CANE.

Every addition to the number of cultivated plants, whether directly applicable to the support of man as food in themselves, or indirectly as contributing to the rearing and fattening of animals for the slaughter-house, must be reckoned as so much gain to our common humanity; valuable, of course, according to the proportion between the expense of their cultivation and the amount of production, as compared also with those plants already in use amongst us. Since the general introduction of root and green crops in the cultivation of the country, an immense increase of food has been added to our stores of food; and at the same time the condition of the land has been improved, and the produce of the grain crops increased, by the raising of greater quantities and a better quality of manure. The turnip husbandry drove out the system of fallowing; after a time the ruta baga nearly superseded the common white loaf first introduced; and till more recently, the mangel-wurzel has, in a great measure, ridden over both, as yielding a larger and more profitable crop. The sugar or Silesian beet-root is still upon its trial in this country, as against the common mangel, although on the Continent it is, for special reasons, largely cultivated. When its saccharine properties are as well understood here, it will probably be more generally patronized by the graziers.

Another plant—for which Europe is indebted to China—has recently been introduced into France, where it is likely to be extensively cultivated. We refer to the sorgho, or Chinese sugar-cane, of which a specimen has been forwarded to us by our agricultural correspondent now travelling through France. As in his letter on the subject, published in a recent number of our Journal, he recommends this plant to the attention of the British farmer, we have thought it well to look into the subject; and we shall now proceed to give them the result of our inquiries.

The sorgho appears to be a plant of a nature between the sugar-cane of the West Indies, and the maize or Indian corn. It is like the former in the stem; but, so far as we can ascertain, is nowhere, like it, a perennial plant. It comes to maturity in five months; whilst the cane requires from twelve to eighteen months, according to the irrigation applied to it. With regard to the maize, the sorgho resembles it in its growth, foliage, and constitution, but is totally different in granular produce. In saccharine properties the cane and the sorgho are nearly of equal value; for whilst the cane yields from 14 to 18 per cent. of saccharine, the sorgho will yield, according to Leplay, 15, and to Dupeyrat 10 per cent. of crystallizable sugar, of precisely the same character as that of the cane, the beet-root, and the maple. Of the proportion contained in maize we have not the means of ascertaining at hand; but if our recollection does not deceive us, it is from nine to twelve per cent. This, however, is not now the question which lies between the sorgho in the South and the beet-root in the North of France, in which country the two will probably come into vigorous competition in the manufacture of sugar.

The sorgho has hitherto been acclimated in France only as high as the department of the Loire, in the 47½° N. L.; and we have reason to think that it will not pay to cultivate it at a higher latitude, from the noticeable fact that the further north it is grown, the less saccharine it will yield. This accounts for the difference between the two statements given above. M. Dupeyrat speaks of sorgho grown in 47½° N., whilst

Leplay refers to the department of Le Gard, in 44° N. L., the difference in the produce of saccharine being *five per cent.* It is the same with the sugar-cane, which cannot be cultivated at all at a higher latitude than about 44°, at which the proportion of saccharine is far less than in the tropical countries. In this respect, both the sorgho and the sugar-cane differ in toto from the beet-root; the quantity of saccharine contained in this latter being greater in proportion as it advances northward. Below 45° it is so small as not to be worth cultivating, whilst in Northern Russia it yields as much as from 13 to 15 per cent. The cultivation of the sorgho in France therefore, for the purpose of making sugar, must necessarily be confined to the South, as that of beet-root is to the North, even if it could be acclimated in the latter, which we much doubt; at any rate, it cannot be profitably grown there for sugar-making purposes.

As fodder, however, the sorgho possesses valuable properties, and will doubtless be extensively cultivated in the North of France. Whether for that purpose it could be grown in the United Kingdom remains to be proved; but, at any rate, it is worth trying. In that case, it ought to be sown in the latter end of June or early in July, when there is no danger from frost. It will then be ready to cut in September, and continue until November. If the plants were raised on seed-beds, protected from the frosts at night, it would enable the grower to obtain them at least a month earlier, and they would then come in at a period when the dry weather would render them particularly useful for cattle.

With respect to the mode of cultivating the sorgho, it is sometimes sown broadcast, and sometimes in drills. Another method is, by throwing the land into small hillocks, by first ploughing it in the Northumberland fashion, and then by cross-ploughing to form it into squares; upon which, put in about four seeds, or plants (if ready), at a distance of about a foot apart. A small quantity of guano or other artificial manure put in *near*, but not *with*, the seed, will materially promote its growth. A light sandy soil is the most adapted to the sorgho, but it should be well manured. The *Landes* in the department of the Loire, to which the statement of M. Dupeyrat refers, are a pure moving sand. 10lbs. of seed per acre is about the quantity. It should be previously steeped in water from twenty-four hours to three days; the latter, in order to hasten its growth. The seeds which swim on the top should be thrown away, as only that which sinks to the bottom will vegetate.

The quantity of produce from the sorgho is prodigious. Dupeyrat speaks of a return at Beyrie in 1857, in one cutting, of 123,000 kilos. per hectolitre, or about 48½ tons per acre. It grows from nine to twelve feet in height, the specimen we have received, being fully the latter. It throws out several stems from the root; and when intended for sugar making the weak shoots are taken off, leaving from three to five only of the stronger ones. But when it is intended for fodder this is unnecessary. In France it is used in the making of wine; and two ares of land, which are 239 square yards, yielded 132 gallons of excellent wine. In distilling, the ripe plant will produce from 7·45 to 9·80 per cent. of alcohol. This refers to the south. It is estimated that 44,000 kilos. of green sorgho are equal to 16,000 kilos. of hay, in nutritive properties. The cattle are remarkably fond of it, and will leave any other food whatever for it.

THE AMERICAN WOOL TRADE.

We give below the circular of the Cleveland Wool Depôt for July. It is encouraging to wool owners. It says:—

"Our receipts at the present time are very brisk, although the amount in store at this time is not equal to that of former years, which may be attributed to the unfavourable weather for shearing. Having made no sales of our medium grades, we are unable to quote prices of same. We have effected sales of our extreme coarse and fine grades, which we quote at 30 cents for No. 5, and 50 cents for super.

"The indications are far more favourable than we anticipated two months ago, at which time the views of manufacturers were much lower than at the present time. During the last two weeks, a large amount of low and medium wools have changed hands in this State, prices starting at 22 to 33 cents, and, by the competition of buyers, rapidly advancing to 28 and 40 cents. The average price paid in this country at this time is about 35 cents, which, however, does not command the best clips.

"The manner of operating so far, this season, has been unlike that of any former years. Agents have had positive instructions not to exceed a given price for any quality of wool, and this has had the effect to bring out a much larger proportion of low wools, and to leave a much larger proportion of fine to be sold, than during any former years. We have heard of a few fine clips being bought through the country at 42, 44, and 45 cents. Our advices from Michigan are very reliable, giving a similar state of the market there, prices starting at 27 to 31 cents, and advancing quickly to 33 and 35 cents. We are advised that one prominent buyer has withdrawn from the market in Michigan, deeming the latter rates too high. The wool market through the west presents quite an anomaly. Manufacturers measure the prices they wish to pay by their good or bad luck during the past six months, whilst speculators seem to measure them by the amount of money they can command, and the competition surrounding them.

"Those who complain of too high prices, follow in the wake of the bolder operators, and are rapidly taking up the coarse wools at satisfactory prices to growers, except in certain localities, where prices remain low. We would advise growers in such places to hold their wools until they are wanted for consumption, and abide the result of a more favourable market.

"Your obedient servants,

"GOODALE & Co."

—*Ohio Farmer.*

CALENDAR OF AGRICULTURE.

This is the general harvest month, as all kinds of seed-crops will be cut and carried, except in high situations and in northern latitudes. Wheat is best cut by hand-sickle, and tied in sheaves: barley and oats are mown, and may lie some days in swathes before being tied into sheaves. When dry, carry the grains quickly. Turn over the heaps of peas very often, that no mouldiness may happen on the under-side: build the crop with a light pressure in the ricks, and have plenty of thatch always ready.

In late climates, the sheaves of grain must be made small in size, and may be very beneficially built into small ricks of three or four shocks in the field, to stand there till sufficiently dry to be carried.

Cut all grain-crops before dead-ripeness happens: the straw makes better fodder, the sample of grain is finer, and the meal is more farinaceous. The husks being thoroughly filled, the grain will soon become hardened.

Finish the cleaning of all grain-crops; and earth-up potatoes with two furrows of the double-mouldboard plough, drawn by two horses walking in distant furrows, with a main-tree of five feet stretching between them. A week may elapse between the two furrows of earthing-up. Pull by hand all tall weeds that may afterwards arise.

Lay pulverized lime on clay fallows: harrow and plough it into the land lightly; or lay the cinders on the land, and plough them under. The bursting by the moisture in the soil will emit much caloric and damp exhalations, which will very greatly benefit the land. The subsequent ploughings and harrowings will mix the lime and the soil. This mode requires an earlier application than when the lime is pulverized. Lay dung on the wheat-fallows. Spread it over the surface of the ground very evenly, and plough it under; or drill the land with one furrow of the common plough, spread the dung in the hollows, and reverse the drills with a single furrow, which will completely cover the dung. A cross-harrowing will level the drills before the land is seed-furrowed. When wet clay-lands are ploughed, the cuts across the headlands must be very carefully opened, to convey the water into the ditches.

Supply to horses and cattle in the feeding-yards ample store of vetches, which, being now seeded, will form a very good provender. Provide litter in abundance: the manure produced will pay almost any cost.

Fold sheep on bare spots of poor lands, arable or in pasture. Proceed with draining. Turn over earthy composts. Burn peaty and vegetable substances, for ashes as manure in the drills. Keep the liquid-tank filled with earthy substances, to be saturated. Carry to the pit refuse matters of every kind.

Keep the draught-ewes on good pastures, in order to get them fattened. Put ewes to the ram, for early lambs. The lambs of last year must have good keep. Some farmers, who have not winter-food nor the means of fattening, now sell the lambs and draught-ewes.

Sow on beds of rich and well-prepared ground the seeds of drumhead cabbages, kohl-rabi, savoys, and broccoli, for plants to be used in May. Sow, about the end of the month, rye and tares for early spring use.

THE GARDENER'S ASSISTANT, PRACTICAL AND SCIENTIFIC: a Guide to the Formation and Management of the Kitchen, Fruit, and Flower Garden, &c. Parts I. and II.

By R. THOMPSON, Corresponding Member of the Massachusetts Horticultural Society, &c., &c.

(Blackie and Son, Glasgow, South College, Edinburgh, and Warwick-square, London.)

This is an elementary work on the science and practice of gardening in all its branches, conducted by a person whose name, wherever it is known, is a guarantee of the merit of his book. It commences with a complete calendar, condensed in a small compass, of the operations necessary in each mouth; and without going into the minutiæ of processes which swell the pages of most books on the subject, but which every man who undertakes a garden must be supposed to be acquainted with, it is a reminder of the most essential work to be performed, and the most direct method of performing it. We take at random the section on "Pits and Frames" of the floral department in February as follows:

Auriculas.—Top dress with rich soil. Young plants in small pots should be shifted into larger. An increased supply of water will be required as the plants start into active vegetation. Protect from frost, but give always plenty of air when the weather is favourable.

Azaleas must be kept from damp by a free circulation of air.

Calceolarias.—Shift, and keep in a general moist atmosphere.

And so on through the alphabetical list, every part of the calendar being couched in the same concise and direct style, conveying the largest amount of information in the fewest words our language will admit.

The scientific part of the work is equally comprehensive, and conveys the greatest amount of information in a condensed form, of any work of the kind we have met with. There are seven chapters in the two numbers or parts before us, which respectively treat of, 1st, The principal organs of plants; 2nd, Germination; 3rd, The food of plants; 4th, Assimilation of food; 5th, Soils; 6th. Manures; 7th, Tools, instruments, machines, &c. used in gardening. On all these subjects the latest and best information is afforded in this work, which will be found both valuable and interesting to the practical gardener who is desirous of basing his operations on scientific principles.

The work will be completed in about ten parts. The plates and illustrations are in the first style of engraving, and the whole will form a valuable addition to the horticultural class of publications.

CULTURE OF THE SOIL MORE HEALTHY THAN OTHER PURSUITS.

Farmers are by no means exempt from the thousand ills of life. They sicken and die, as well as other people. Husbandry, as a calling, is a healthy one; yet there are exceptions to the general rule. Farmers may overwork themselves, may wear unsuitable and insufficient clothing, may be uncleanly in their persons and habits, may indulge undue anxieties about their affairs, and may give themselves up to the control of passions which are fatal to the health of every man. And if they transgress any of these laws of health, the fact that they are tillers of the soil will not save them from the penalty due to their misdeeds.

We maintain, however, that this pursuit is eminently *favourable* to health and longevity. It furnishes exercise in the open air, which is one of the chief promoters of good health. . All professional authorities, and the experience of mankind at large, agree as to the value of this medicine. Abundance of the choicest food, the finest clothing, superb dwellings, education, polished society, and all other good things of life combined, are no substitute for this. With them all, and yet without this, the poor body will wither away, and fall into a premature grave.

The business of the farmer calls him into the open air at all hours of the day. If there is any virtue in early rising and the morning air, he gets it. If there is any evil in the damps of the night air, he generally escapes it; for his labours commonly close with the setting day. It is a rule of health to expose oneself to the open air every day in the year, regardless of clouds and storms. A faithful farmer can hardly shut himself within doors an entire day, unless confined there by sickness. Even in the most leisure seasons of the year, and with abundance of hired workmen, he wishes to be abroad, looking after the welfare of his stock, his buildings, and crops.

The labours of the farm furnish exercise of the best kind. It is not labour in a confined shop, nor the use of one set of muscles exclusively. The arms, chest, feet, legs, all come into requisition; and the labour is so varied from day to day, as to afford a pleasing alternation of exercise and rest to the several members of the body. As a general rule, too, this labour is not exceedingly wearisome. Farmers, like other men, may lose their balance, and toil imprudently at times, as in haying and harvest; but they need not overwork themselves. The general fact still remains, that the labours of the farm are pleasant, not burdensome and injurious, and are well adapted to invigorate the whole frame.

Temperance in living has much to do with the preservation of health. And by this we mean, not only temperance in drinking, but also in eating; abstinence from unwholesome food, as well as from alcoholic liquors. It cannot be denied that the use of intoxicating drink is much less common among farmers than among other classes. The circumstances of their life seem to forbid such indulgence. They are away from scenes of temptation; their passions are little excited; their work cannot proceed if body and mind are not under control; they must either give up their calling, or renounce the cup. The diet of the husbandman is generally simple and wholesome. The rich and highly concentrated dishes of fashionable and epicurean tables, the mysteries of French cookery, seldom find their way to his board. In their place, he has the fruits of the earth in their natural state, and in abundance. He is not without luxuries and delicacies; but they are, for the most part, those which his own industry and skill have produced from his farm and garden. He has them in great variety, and in their highest state of perfection and freshness. His food is eaten, too, at suitable and regular hours, and under the impulse of a healthy appetite, not one created by artificial stimulants.

Mental excitement is a prolific source of ill-health. It is a common saying that a fit of anger is about as bad in its influence on a man's longevity, as an attack of fever. Excited expectations or great disappointments are well known to wear upon the nervous system, and to derange the health. The constant anxieties and cares of trade, manifestly operate in the same way. From wearing excitements of this sort, the agriculturist is mostly free. He is not, indeed, without his cares. Late springs, and early autumnal frosts, untimely rains, droughts, and the uncertainties attending the ingathering of crops, give him no little anxiety. Yet these do not corrode the heart, like the cares of trade, the thousand annoyances of intercourse with selfish men; they are not so constant; they are almost remitted during the winter season; and they are mitigated, if not wholly counterbalanced by the scenes of quiet and repose, amid which the farmer's life is passed.

We have often contrasted the history, in this respect, of different members of the same family, some of whom left their country home to engage in business in the city, while others chose farm-life. Sometimes the tradesman succeeds in business, and prosperity and health crown his days, even to a good old age. But more often, the wear and tear of business, disappointments and losses set over against successes and accumulations, sap the foundations of health; and dyspepsia, or consumption, or nervous affections in their various forms, creep in unawares, and embitter life and cut it prematurely short. As a general fact, grey hairs and wrinkles show themselve much sooner upon the tradesman than upon the farmer.

We do not mean to go into a laboured argument on this subject; but in closing, we want to fire a little volley of statistics, before which nobody but a farmer can stand. From a late annual Report of the Secretary of the State of Massachusetts, containing returns of marriages, births, and deaths in each town, the following facts have been gathered. The result has been made up from the returns for nine years and eight months, of persons dying over twenty years of age; and the comparison is drawn between agriculturists and persons in the leading mechanical trades:

Occupations.	Average age at Death.	Average length of life after 20 years of age.
Agriculturists	64	44
Hatters	53	33
Blacksmiths	51	31
Carpenters	49	29
Masons	48	28
Tailors	43	23
Shoemakers	43	23
Painters	42	22
Tinsmiths	41	21
Machinists	37	17
Printers	36	16
Operatives	33	13

In the above Report, the deaths of 7,781 mechanics are given (46 more than of farmers), whose average age is exactly 46 years, while that of farmers is a little over 64 years—showing a difference of 18 years in favour of agriculture. Speaking statistically, it appears that a farmer at 20 years of age may expect to live 44 years, and a mechanic only 26. Among mechanics, carpenters and masons, who spend much of their time in the open air, live nearly 50 years; while machinists, printers, and operatives, live less than 40 years.—American Agriculturist.

FURZE AS FOOD FOR HORSES.

Sir,—As you now and then receive some little matters written by me, and are so courteous as to give them a place in the *Farmers' Gazette*, I now send another in the hope it may promote your object in being of benefit to those who read your paper. It has been too much the practice of horticulturists to introduce and recommend new plants and flowers, and to let the old pass into oblivion. Thus the beautiful moss rose, the cabbage rose, the York and Lancaster, the double white rocket, with others, which fifty years since were the delight of the cultivators, some are now never seen, and others, like poor relations, are left to take the lowest room, and new or scarce plants and flowers, which bear no comparison in fragrance or beauty, are the ornaments of the garden. In the same way, in improved agriculture—though there are few who join more in heart and hand in the introduction of new plants and new practices to this land; though there are many of the old I long to see exploded, such as poorly paid, badly fed, and, as a certain consequence, badly executed labour; small, weak, badly fed horses, and consequently light and inefficient ploughing, and therefore scanty produce—still there are others of the old school I regret to see neglected.

"'Tis right to be off with the old love,
Before we are on with the new."

I shall now make some remarks on the most valuable of those old practices which are too much neglected—feeding cows and horses on furze (whins), the fiorin grass, and irrigation. I have been for fifty years and more feeding my cows and horses on furze, and I can say, from that long experience, that it is the cheapest and best food for the autumn and winter months. I saw it in constant use at the residence of the late Rev. Horatio Townsend, the author of the Statistical Survey of this county, who strongly recommended it. I followed his example, and never have regretted doing so. I have had my horses, getting neither hay or oats, in more beautiful condition (sleek as mice) than any of my neighbours, though they had costly grooms, the horses fed with best hay, oats, and beans, and warmly clad. Mine were, perhaps, not as fit for the race-course or the hunting fields; but for road-riding, carriage work, or the work of the land, they were most fit, though fed only on chopped furze and steamed swede turnips, and I rejoice to see that this valuable food has been brought under the notice of the agriculturist.

On arranging some papers lately, I found a letter, dated June, 1840, from one of the best practical agriculturists I know. He states, "The most profitable crop I have planted is furze. With an acre and a half I fed five horses up to the 1st of June. I have twelve tons of hay for sale, which I never had before. It would be much easier to induce the farmer to cultivate furze than to grow turnip; and I believe it is more profitable. Land inaccessible to the plough, of which we see so great a proportion, would yield great crops of furze; and land remote from manure could not be better disposed of. We are in the infancy of knowledge as to what ground is capable of, or what plants are best suited to the varieties of soils. The fiorin is a plant that never got a fair trial in the south of Ireland. I think the time will come when all the bog and low lands will be covered with it. If you look out about the latter end of June you will meet it at every step." The old practice of preparing furze was tedious, and comparatively expensive, by a block with transverse knives, sometimes with a long handle, and better with a chain, hooked on what is known by the name of a turner wattle, or by a straight spade, sometimes by thrashing. The great desideratum has been hit upon by Messrs. Richmond and Chandler, in their powerful straw-cutters, varying in price from £7 to £10.

I have just now attended my machine bought from Mr. Thomas M'Kenzie, Cork, for £7, a man cutting, and a boy feeding it, the furze ready, and in 17 minutes they cut 17 buckets full; the bucket contains 3½ gallons. This is fully sufficient for four horses for 24 hours instead of hay. Hay is spread on the top of the furze and cut with it; it improves the cutting, saves the boy's hands from the prickles, and is an advantage in the feeding. When ready it is wetted with water, which makes the mastication easier. The expense of the man and boy is 1s. 5d. a-day—say ten working hours; and working little over a quarter-hour, or the one-fortieth of 17 pence for the labour of preparing food for four horses, or about three-eighths of a penny a-head. A tenant of mine who lives in Carberry told me he feeds his horses entirely, and his cows mostly, on it all autumn and winter; he mows it every second year, and has abundance for them from a piece of land which cannot be ploughed, and which would produce nothing else; he cuts it with the straight spade, and it takes a man for the entire day to prepare sufficient for six horses.

Now that Richmond and Chandler have brought out such a machine, there is no excuse for it not being in general use; and though furze will grow well on stony and rocky land (I have seen the roots several feet down in the chinks of a quarry), the best arable, dry land will produce a far better and more abundant crop, and a more succulent shoot. Three acres of such land appropriated to the growing of a plant which is perennial, and requires no further culture (though, I doubt not, it would be still better for annually opening the ground, and digging or forking in manure), still an everlasting winter meadow, of no comparison better food than hay, is no slight benefit now that the difficulty of its preparation—the great obstacle—has been overcome. Cattle will not hove with it. They are always sleek—an indication of health. It is in a fit state from October to May, inclusive. It improves the wind—a thick-winded horse becomes a free breather; broken-winded have no appearance of their being so; and I have seen horses cured of cough by feeding with it. I dare say many who know not its value, and who are of those who deprecate any innovation or change, will say all this is hyperbole; this was often said of fiorin and of turnip culture; but when the failure of the potato compelled turnip culture, they then saw that the new was better; and I pledge myself that any who henceforth use furze, as directed, will fully agree in every word I say. Directions for sowing the seed in fields would be very desirable.—Yours, &c., WILLIAM R. TOWNSEND, *Aghadda Rectory, Rostellan, Co. Cork, Feb.* 12, 1858.

WHY USE CUT FEED?

An intelligent farmer asks for the philosophy of cutting hay. He can understand that it is useful to cut corn stalks and coarse fodder, because the cattle will eat them better. But when cattle will eat up good English hay perfectly clean, why should it be passed through the hay cutter?

Our friend evidently supposes that the stomach does its work upon everything that passes into it, with equal facility, and without any tax upon the rest of the system. This is manifestly an error. All food has to be ground up, before it can be assimilated and pass into the circulation of the animal. If food is not artificially prepared by cutting, grinding, or steaming, the animal has to prepare it himself, so far as he is able. Certain kinds of food will pass through the system, imparting to it only a part of their nutriment, because the teeth of the animal have not perfectly masticated it. Whole kernels of corn or of oats are frequently seen in the fæces of an old horse.

The more perfectly food can be prepared, the more completely will the system appropriate its nutriment. If the whole labour of grinding up the food is thrown upon the animal it is a serious tax upon the vital energy, which every good farmer wants for other purposes. In the case of the horse and ox, you want the strength applied to locomotion and draught.

Whatever strength is applied to grinding food, is so much taken away from their capacity for labour. If three or four hours of strong muscular labour are spent in working up hay and straw into a pulp, there is a great loss of strength and of time.

In the case of fattening animals, you want the aliment to go to the formation of fat and flesh. This process goes on successfully, just as the animal is kept quiet and comfortable. No useless labour should be expended in the grinding up of food. The straw-cutter, working up the hay into fragments of half-an-inch in length or less, performs good part of the working of the jaws, and makes the feeding of the amimal still a light matter. If the hay could be ground up into a fine meal, it would be still better; as it would make the work of the animal still lighter, and would more completely yield up its nutriment. If it could be steamed it would be best of all, as it would then be wholly appropriated.

We have no doubt that it pays quite as well to pass hay through the machine, as the coarsest fodder. A root-cutter is also an indispensable adjunct to the barn, and the more perfectly it comminutes the roots the better.

The farmer who has ever experimented with these machines, and marked the results of feeding with hay and roots prepared in this way, can have no doubt of their utility. Laziness, we apprehend, has quite as much to do with these machines as ignorance. Is is work to turn the crank to cut up hay enough to feed twenty head of cattle; and in prospect of spending the elbow grease, it is very convenient to believe that it will not pay. Sloth, however, is a poor counseilor in this case, as in all others. We should as soon think of feeding them with uncut straw. A warm stable and a straw-cutter are both good investments.—Goward's Register.

AGRICULTURAL REPORTS.

GENERAL AGRICULTURAL REPORT FOR JULY.

The all-engrossing topic of discussion in agricultural circles during the month has been the present prospect and the probable yield of the new crop of wheat. On this highly-important subject the most conflicting accounts have reached us, and, as yet, we have not had an opportunity of forming a decided opinion, except on their general bearing, owing to the limited quantities yet submitted to the process of thrashing. From some counties our letters state that the crop is fully one-third deficient, when compared with last year; and some correspondents declare that the growth is unusally small; but from the general tenour of our accounts, which are certainly *much less* favourable than they were a month since, we are of opinion that the yield will be nearly equal to 1856, though short when compared with 1857. The quality of the grain is likewise much complained of, and no doubt the unusually high temperature experienced during the last portion of June and the beginning of July, and the almost total absence of moisture, produced what may be termed premature ripeness, consequently a shrivelled grain and light sample. In many quarters, too, large breadths have been laid by the heavy rains; consequently the sample must be more or less deficient, and the expense of cutting and carrying increased by some ten to fifteen per cent. In a comparative sense, therefore, there is undoubtedly a deficiency both in the yield and quality; but its extent must in a great measure be determined by the state of the weather between this and the close of harvest work. In the most forward counties a good deal of wheat is now cut; but in the north very little progress has as yet been made in cutting. Again, the future value of wheat has been the subject of deep anxiety; but this point will, of course, be more clearly defined as harvest work progresses, and when its actual result is more clearly understood.

Although spring crops have rather improved in appearance, we have no hesitation in saying that their yield, especially that of beans and peas, will prove very deficient. The new barley which has made its appearance at Mark-lane has turned out somewhat thin, but otherwise in nice condition. The prices realized for it have varied from 36s. to 42s. per quarter. New white peas have sold at 43s. to 45s. per quarter; but their quality has been very middling.

The crop of hay has been mostly carried, even in the north. In some quarters it has turned out tolerably well; but we estimate it at fully one-third short of last season; however, there is every prospect of a heavy second crop, as there is now much more grass in the fields than at this time last year. From nearly all quarters unusually favourable accounts have reached us respecting the crop of potatoes. The haulm is looking remarkably well, and during the past three weeks the tubers – in which no traces of disease are yet to be met with—have grown with great rapidity. Prices, with large supplies on offer in the various markets, have fallen.

The demand for wheat has continued in a most inactive state, and prices have consequently had a drooping tendency. The importations from abroad have been seasonably large; but our farmers have supplied the various markets with more than usual caution. They are perfectly justified in the course they have taken, because it is quite clear to us that even a good new crop can scarcely reduce prices much below their present level; and it is quite evident that a deficiency in the yield will have the effect of producing greater firmness in the quotations. We must bear in mind, however—and this matter must enter into calculations on the subject of future prices—that we are now commencing the consumption of the new crop with more old wheat in stack than has been known for many years past. All must admit that last year's crop was a most abundant one, and statistics show that less English wheat has been sold since last harvest than in many previous years. Therefore, although there may be a deficient crop, we can scarcely see room for any important rise in the quotations. As regards spring corn, however, we may safely state that there is room not only for great firmness, but an upward movement in value. The quantity produced in this country is never equal to the demand, and we may take it for granted that there is a deficient yield.

Although the trade and commerce of the country have as yet shown no signs of increased vitality, the consumption of food generally has been on the increase. The cattle trade has consequently assumed more firmness during the past fortnight, and the amount of stock disposed of in the Metropolitan Market has been rather extensive.

The produce of fruit this year is a full average one; but we understand that on the continent it is considerably less than last season; consequently, the importations have been on a very limited scale.

At length the wool trade has shown signs of vitality. Notwithstanding that nearly 80,000 bales of colonial wool will be offered at the public sales now in progress, prices have advanced 1d. per lb. English wool has likewise commanded more money; but within the last ten days the demand has slackened, owing to the large quantities of the new clip on offer.

Owing to the splendid prospect of the hop bine, the duty on the new growth of hops has been done as high as £230,000. Old hops have sold heavily, and prices have continued to give way.

In Ireland and Scotland wheat has sold slowly, and the quotations have had a drooping tendency. In spring corn—more especially in oats, which command high quotations—a steady business has been transacted, but the stocks generally are almost wholly exhausted. The shipments of produce to England have been on a very moderate scale.

REVIEW OF THE CATTLE TRADE DURING THE PAST MONTH.

Owing to the long drought which prevailed throughout England prior to the 14th of the month, increased supplies of both beasts and sheep, chiefly in very middling condition, have been on sale in the leading markets since we last wrote. At one period so bare were the pastures of food that it was found necessary to commence the consumption of the new crop of hay, and not a few of our graziers were compelled to dispose of stock which otherwise would have been kept back for some months. However, since the date above mentioned, grass has become plentiful, we have had abundant and refreshing rains, and fewer forced sales have taken place: hence, the cattle trade has assumed more firmness, and prices have had an upward tendency. The consumption of food in the metropolis and in the manufacturing districts has certainly increased, and the cattle trade generally now appears to be in a more healthy state than since the commencement of the year. Still we are not anticipating much higher prices than those now current; both for the grazier and breeder they present a fair margin of profit, and we see no reason why any important fluctuation should take place in them between this and the close of the year. No doubt the supplies will be taken off somewhat freely as they come to hand; but we must bear one important feature in mind, viz., the full average numbers of both beast and sheep at this time in our various districts, and the absence of any serious disease, even in counties where from time to time heavy losses have been frequently sustained. It is possible that some parties may feel disinclined to endorse our observations in reference to the supplies of stock in the country; but it would be folly for us to contend that anything approaching scarcity exists: besides—though we believe that the importations will be only moderate when compared with some former seasons, we must not forget that we shall have foreign supplies continually dropping in, and which, as a matter of course, will exercise some influence upon the quotations.

The Norfolk season for stock has now just concluded. Throughout, it has not produced so large or so valuable a number of stock as we have sometimes witnessed; still it has been decidedly good; but it may be well doubted whether the season has been a profitable one to the grazier, owing to the unusually high prices paid for store animals during the greater portion of 1857. The supplies of beasts as yet received from Lincolnshire exhibit a great improvement over last season. For the most part they exhibit points highly valuable to the butcher, and, as such, they will, we think, prove a source of profit to the graziers. It is a remarkable fact that, during the last twenty years, the short-horned breed of cattle has increased in number, almost throughout the United Kingdom, more than any other breed—a proof that it is highly appreciated both by the graziers and butchers.

In the early part of the month—say during the first fortnight—the trade generally in the Metropolitan Market was in a most inactive state, at drooping prices; lambs especially were extremely depressed. Since then, however, the demand has improved, and the quotations have been on the advance. The total supplies of stock, both home and foreign, brought forward have been as follows:—

Beasts	20,468	head.
Cows	547	,,
Sheep and lambs	154,932	,,
Calves	4,262	,,
Pigs	3,290	,,

COMPARISON OF SUPPLIES.

July.	Beasts.	Cows.	Sheep and Lambs.	Calves.	Pigs
1857	19,558	530	142,280	3,830	2,395
1856	18,589	500	135,650	3,407	3,225
1855	16,702	535	149,470	2,757	4,000

From the above comparison it will be seen that more beasts and sheep were exhibited last month than at the corresponding period in the three previous years.

The arrivals of beasts from Norfolk, Suffolk, Essex, and Cambridgeshire, last month, were 6,000 Scots and shorthorns; from Lincolnshire, Leicestershire, and Northamptonshire, 7,600 shorthorns; from other parts of England, 1,020 of various breeds; from Scotland, 218 Scots; and from Ireland, 230 oxen.

Some heavy importations of foreign stock have taken place, owing chiefly to the want of cattle food in the north of Europe. The beasts, as well as the sheep and calves, have reached us in very poor condition, and, consequently, the quotations have ruled very low. Annexed are the official arrivals into London:—

Beasts	5,138	head.
Sheep	17,382	,,
Lambs	3,131	,,
Calves	3,461	,,
Pigs	2,080	,,
Total	31,192	,,

Same time in	1857	26,958 head.
,,	1856	30,537 ,,
,,	1855	22,680 ,,
,,	1854	22,242 ,,
,,	1853	38,795 ,,
,,	1852	27,008 ,,

Advices from the continent state that the actual numbers of fat beasts and sheep on hand are smaller than in the usual run of years, and that prices are relatively high.

Newgate and Leadenhall markets have been seasonably well supplied with meat, which has sold slowly, without material change in the quotations.

CORNWALL.

We are now verging on the brink of harvest, and everything will depend on the weather as to the quality of bread during the ensuing year. The last ten days, or more, have been cloudy and overcast: on the night of Saturday last and on Sunday it blew a storm. Monday was fine, but yesterday it rained the whole of the day. Should the weather become more settled, with bright sunshine, cutting of wheat will be pretty general in another week. The general appearance of the crop is favourable, though in many places it is very much lodged, and some flat and close to the ground, but what is standing appears to be turning off a good healthy colour. We have not heard any complaint of rust or mildew, but there are certainly great deficiencies in the ear. The early-sown barleys have a good appearance, and will soon be ready for the scythe, and in strong land there appears no want of straw; but the late-sown are thin and short, particularly on the thin soils. Oats, which are generally sown on the light and inferior soils of this county, have suffered from want of moisture, but those on strong and heavy land are very promising, and, to all appearance, will turn out well. The late rains have already had some effect on our brown and sunburnt pastures, which for some time have yielded a very scanty supply, and it will require some weeks to restore them, even to keep the stock in condition; as to fattening, it is quite out of the question, without a supply of cake, corn, or some other substitute. The mangels are doing well, and promise for a fair crop, and never was there a better season for hoeing and setting them out in order. Swedes in some instances have been taken off by the fly, and re-sown; but upon the whole they may be said to promise fair. We have now several new varieties of pasture turnips, some of which were sown late, and all are coming forward most rapidly. Potatoes are much better in quality than for many years, and the crops of all kinds much more productive. The blight has, here and there, done some damage, but as yet not to the extent of former years, although the haulm is black and withered. Apples are a partial crop: we have seen some fine orchards nearly bare of fruit, and we have heard of some good crops. There is a good demand for well-fatted beasts at 60s. per cwt., or a shade beyond; but the scarcity of keep fills the markets with inferior ones, which are sold much lower. Stores are to be bought on much easier terms, and of late there has been no demand for them. Fat sheep 5½d. to 6d. per lb., with a good supply. Wool much sought after, and the price firm. We cannot find any account of rape having been sown in this county until about forty years ago, and then only by one or two individuals. It is now become very general to sow a portion of the land destined for autumn wheat to rape in the spring, and feed it down with sheep through the summer, which ensures a strong crop of wheat. It is well known to fatten sheep in less time than any other food. Pigs and geese are also fond of it, and store pigs will not only keep in condition, but improve. We name this, as we perceive is is not cultivated to any extent in some parts of the kingdom.—July 28.

NOTTINGHAMSHIRE.

The time of the year furnishes us with ample material for a report. Our grass fields have for some time had a withered aspect, requiring rain very much. Keep has consequently become scarce, and many farmers have had recourse to oilcake as an auxiliary. Stock generally have made but little progress for want of a full supply of food; and their being teazed with the flies, allowing them very little rest, well fatted stock is, as might be expected, scarce, while those which our butchers call half-meated things are very plentiful. Store stock is very freely brought to market, and, throughout the county, in but very indifferent condition. The spring corn crops have progressed variously: very early sown has done well, while anything sown at a medium time or late, is in many instances nearly worthless. A friend of ours, who farms extensively in the neighbourhood of Mansfield, holding full 1,000 acres of light siliceous land, will scarcely have seed returns from all his spring crops. Another tells us he has 40 acres sown with barley he was ploughing up again, to drill with turnips; and hundreds of acres are in a similar state from Nottingham to Worksop. It will be felt the more as being a second disaster which has overtaken the farmers of that district. During the last harvest their wheat, which generally is fine white of Dantzic quality, was so sprouted as to render it nearly worthless for human food, and the money loss is not easily conceived. The southern parts of the county are more fortunate, but spring corn of all sorts as a whole is very deficient—a very poor crop. The turnip crop is very indifferent. The early-sown ones have made some progress, but hundreds of acres have been resown, and it will much depend on the amount of rain which may fall whether we shall have any or not in such fields. There have, as usual, been a many charges brought against the fly, and a full share of anathema indulged in. Why have the early plants escaped? Why the sheltered parts of the same field? Why, in the same field, so many instances present themselves of hit and miss? A neighbour of ours, a good farmer, and one of whom we thought better, has invented a dusting machine, which we think displays ingenuity enough, but, as a remedy for the diseased turnip plant, is, we think, quite as well in the shed. It will do the plant about as much good as a good dusting of snuff would a lousy animal! Oilcake, liberally given, we think is the best remedy for the animal; and anything which stimulates the growth of the plant is, we think, the only means for the vegetable world. Adverse seasons will at times upset the best-conducted farming operations; but we cannot see why there should be more difficulty in growing the turnip plant than any other. We farm a medium clay soil, and never fail in getting a crop, and this season have not a broken drill, with a good healthy plant; we have seen flies upon them, but never felt alarmed. Our mode of farming is to clean and manure in the autumn, plough in the winter, stir the soil as little as possible in the spring, drill in with ashes three to four quarters of bone dust per acre, and use plenty of seed. There is no secret about it: they grow like docks, and we think the fly all humbug. The potato crop is good, and the quality, so far, all we could desire. Our hay harvest has been a good one;

never, we think, has more good hay been gathered in any one season. The bulk has been more than, from the dry state of the weather, you might have supposed. Our corn is ripening apace, and we shall soon be in the throng of an early harvest. Our corn markets have rallied a little, but must soon recede, from the quantity of old corn on hand. Many of our farmers never made a greater mistake, we think, than to hold so obstinately last autumn, while the foreigner sold, and pocketed the cash. It is all up now: we advise them to hold on: prices for wheat cannot be much worse. Our labour market is better; good labourers are fully employed, and, with the moderate price of bread, they must feel themselves in more comfortable circumstances. Wages 12s. to 15s., and harvest wages 20s. per week. We hope the poor may be well employed and paid, and that there may be no complaining in our streets.—July 19th.

AGRICULTURAL INTELLIGENCE, FAIRS, &c.

BEDALE FORTNIGHTLY FAIR.—There was a small show of beasts, owing to Topcliffe fair being held the previous day. A good supply of sheep. Business was rather brisk, Beef, 6s. 6d. to 7s. 6d. per stone; mutton, 5d. to 6½d. per lb.

BEWDLEY FAIR.—There was a good show of sheep, short supply of cows, and very few pigs. The attendance of buyers was scarce, and business very dull. Fat sheep fetched 6½d. to 6¾d. per lb.; stores from 28s. to 36s.; lambs, about 7½d.; beef sold at from 6d. to 6½d. Pigs were a trifle dearer.

BRENTWOOD FAIR. — There was a large show of good cart horses, with an active demand. Mr. Barker, of Ingatestone, showed some very clever hacks and hunters, at prices averaging from £40 to £70 each, several of which were sold; in cattle but little was doing.

BRISTOL COLT FAIR.—There was an unusually large show of colts, principally two-year-olds. Buyers, however, were not proportionately numerous, and the colts sold slowly, the highest price given being £44. Several animals were sold at 38 to 39 guineas, but the general prices for useful colts were from £23 to £25. The rates may be stated at about 20 per cent. below those which were obtainable last year.

CAMELFORD FAIR. — 3,500 sheep and lambs were penned, nearly all of which met with a ready sale, the lambs varying in price from 15s. to 26s. per head. The supply of cattle was large, but the demand for them was far from brisk, and only about 200 changed hands at prices rather on the decline.

CARMARTHENSHIRE. — FAIRS have been held at Lansawal on the 15th, at Haverfordwest on the 19th, and at Newcastle Emlyn on the 20th of this month. There was a fair number of store beasts on offer at each of those places. There was a fair attendance of dealers; business was more animated than of late, whilst prices were a shade higher. Cows with calves and fat cows were in fair supply and demand at late prices. A large number of horses and colts were shown at Haverfordwest and Newcastle Emlyn; sales were brisk at satisfactory rates. A large number of sheep and lambs were penned at the two last named fairs, and the whole sold at late prices. Pigs of all descriptions continued without alteration.

COLCHESTER FAIR.—The supply of sheep (about 2,000) was not so large as usual, and there was but little business done. There was a very large supply of horses, nearly 600 being on the ground, consisting of hackneys, Suffolk cart horses, prices varying from 35*l*. to 45*l*, Welsh horses, ponies, &c. Mr. Martin, of Cattawade, showed 60 fine Suffolk horses, of which he sold about 40. He also exhibited a very fine two-year-old Suffolk colt, thought to be the handsomest in the fair, which realized 50*l*., and a two-year-old filly, 46*l*. There were about 150 head of neat stock, but no business doing. The attendance altogether small.

CAWDOR MONTHLY TRYST was well attended, and the stock, taken as a whole, considerably above average in condition. The market was extremely stiff, business, from an almost entire absence of dealers, being confined to transactions among the farmers. For the best cattle there was scarcely any demand, and a number of superior lots left the ground early in the afternoon unsold. Highland breeds were, however, in much more than ordinary repute, and the greater bulk of the sales effected were among them. Though business was not spirited, by the evening a good many sales were effected at much about the prices of last month's tryst.

HAILSHAM FAIR.—With regard to the numbers on the ground, the horses and bullocks seemed to be about an average, but certainly presented no feature worthy of remark, being on the whole comparatively poor, and most part unsold. Of sheep and lambs there were upwards of 2,000, the latter greatly predominating; indeed, the fair was essentially one for lambs, which brought excellent prices. One lot of lambs brought 24s. The other prices averaged from 14s. to 23s. Nearly all were sold. Tegs were scarce: their prices ranged from 25s. to 32s., and one lot brought as much as 38s.

HORSHAM LAMB FAIR.—There were 11,000, principally lambs. In the morning the sellers asked prices which the buyers were not inclined to give, but about noon a better understanding seemed to have been arrived at, from 15s. to 30s. being about the average range of prices. Only one of the lots, we believe, however, reached the latter figure, Mr. Emery's, of Hurston Place, which really was a very superior lot, and much admired in its bonny blue ribbons. Next in price was a very fine lot shown by Mr. Heasman, of Angmering, which made 29s., Mr. Heath, of Upper Hurston, made 27s., Mr. G. Penfold, of Wiggenholt, 26s., Mr. Hardwick, Sullington, 25s., Mr. Reed, Kithurst. 26s., &c., &c. There was a fair supply of horned cattle, and the strong hackneys and heavy horses rather exceeded the usual supply both in quality and quantity.

MORETONHAMPSTEAD FAIR.—The show of bullocks and sheep was tolerably good. Among the former were some prime fat bullocks, which were disposed of at from 9s. 6d. to 10s. per score. There were many cows and calves in the fair; and, although the sales were not brisk, several were sold at from £12 to £16. Barreners, in good condition, also found purchasers at from 7s. to 8s. per score. Many of the steers driven in for sale also changed hands at from £10 to £24 the pair. The number of sheep penned did not exceed 579; out of the above number 350 were sold, and among these were some prime fat sheep, which were disposed of at from 5½d. to 6d. per lb. Good keeping sheep sold at from 28s. to 36s. each. Fat lambs sold pretty freely at about 7d. per lb.

OVERTON FAIR.—The supply was rather over an average, but the trade was brisk from the commencement at from 1s. to 2s. per head under those of last year, at which a clearance was effected. Ewes sold from 30s. to 38s., extra 42s. to 45s. The prize ewes, exhibited in fatting condition, realized from 48s. to 52s. Lambs 22s. to 34s., extra 35s. to 37s. 6d. One lot belonging to W. J. Chaplin, Esq., of Ewhurst, which obtained the first prize, realized 40s. per head. Stock wethers, 32s. to 38s. The sheep exhibited for the various prizes were of first-rate quality, and the competition unusually keen. The judges were Messrs. J. T. Twynam, Winchester, Mr. Thomas Gerrish, Hurstbourne Tarrant, and Mr. T. H. Saunders, of Watercombe, Dorset, who awarded the premiums in the following order: For the best pen of 100 wether lambs, bred from a flock of any number, a cup of ten guineas value, given by Sir Francis Thornhill Baring, to W. J. Chaplin, Esq.; a cup of five guineas value, given by G. Sclater Booth, Esq., M.P., for the second best, to Mr. Digweed, Steventon. A cup of ten guineas value, given by W. B. Beach, Esq., M.P., for the best 80 lambs, to Mr. James Parker, Lasham. A cup of ten guineas value, given by Melville Portal, Esq., for the best 100 ewes, full-mouthed, to Mr Anthony Budd, Overton; a cup of five guineas value, given by his Grace the Duke of Wellington, for the second best, Mr. Davis. For the best ram, a cup of ten guineas value, given by the Earl of Portsmouth, to Mr. Parker, Lasham. A cup of five guineas value, given by the Right Hon. the Lord Viscount Eversley, for the best pen of ram lambs, of any breed, to Mr. George Edney, Whitchurch.

SALISBURY FAIR.—About 10,000 sheep were penned, being about 2,000 more than the number shown last year. Trade was dull, owing to the weather, but prices were fully equal to those of Stockbridge fair. Ewes realized from 26s. to 46s. 6d.; lambs, from 20s. to 34s.; and Wethers, 30s. to 40s. per head. Nearly all the stock brought was disposed of.

SHERBORNE FAIR was well attended by dealers and agriculturists. There were about the usual number of sheep penned; the trade was exceedingly heavy. Mutton, 6½d. per lb.; Down lambs, in their wool, 21s. to 23s.; do., shorn, 14s. to 18s.; Down ewes, 25s. to 28s. per head. There were about 80 Devon steers and oxen offered for sale, but very few were sold. Cows and calves, £11 to £15 each; barren heifers, £9 to £11 each; yearling heifers, principally Irish, £5 to £6 each. The pig trade was very dull. The best cart-horses were sold at from £35 to £40 each. Wool was in demand at 15d. per lb.

ST. BOSWELL'S FAIR.—The buyers were more numerous than for many years; no doubt arising from the recent rains having so much improved the turnips and grass. The fat sheep were in demand for butchering purposes, and sold readily. Mr. Johnston, Marlfield, sold his wether lambs at 26s. Mr. Young, Cowdenknowes, sold his wethers at 26s. Several other lots, from the same district of country, brought within 1s. to 1s. 6d. of the above quotations. Three-part bred sheep suffered about the same reduction; but the half-bred sheep, in condition, brought equally good prices as last year. A lot of three-quarters-breds from Dalcone Mains sold at 36s. A lot sold by Mr. Dudgeon, Spylaw, of half-breds, at 35s. 6d. (eight score). A lot of half-bred ewes and wethers sold at 31s., from near Berwick-upon-Tweed. Mr. Ritchie, salesman, Edinburgh, bought a lot of half-bred sheep at 16s. 6d.; another lot at 32s.; and three other lots at 28s., 31s., and 30s. 6d. At mid-day there were a few remained unsold.

STRATFORD-ON-AVON FAIR.—There was a large supply of stock, as well as some very fine cows with their calves; but, in consequence of there being few buyers, trade was dull. Of sheep there were nearly 2,000 penned, besides lambs, which hung heavily on hand, and the farmers and dealers were obliged to accept lower prices; therefore we may quote beef about 0½d. per lb. lower—also mutton. Lamb sold quite as well as last fair. Both beef and mutton from 5½d. to 6½d. per lb.

TEWKESBURY FAIR.—There was an average supply of sheep, including some very good ones. There were not many cattle, and but few of them were fat. Horses were more numerous, and included some very good cart animals. Trade was not brisk in any department, although a good many farmers and dealers were present. Beef 7d., and mutton 6½d to 7d. per lb.

WEDMORE FAIR was not largely supplied with stock. To effect sales parties were obliged to come down considerably. Beef, ranged from 8s. 9d. to 9s. 9d., some of extra quality may be quoted at at 10s. per score, top figure; wether mutton realized from 6d. to 6½d. per lb.; ewe ditto from 5d. to 5½d. per lb.; some choice lambs fetched from 7d. to 7½d. per lb. In store pigs there was a material reduction in price.

YETHOLM LAMB FAIR.—The number of lambs was very small, and few buyers being present, only a portion of lambs were disposed of.

YORK FORTNIGHT MARKET.—Calving and dairy cows were in supply and demand about equal to last market, and prices the same. A large number of grazing beasts had a very slow sale, many remaining on hand, yet prices were much lower. Fat beasts were in fair supply and demand, at 7s. 6d. per stone; and some of super quality exceeded that quotation. A moderate quantity of mutton sheep sold at ½d. per lb. advance. Grazing sheep and lambs were plentiful, at average prices. We had some very prime lots of foreign sheep, which were much admired for their size and quality, and particularly for the quality of their wool.

REVIEW OF THE CORN TRADE

DURING THE PAST MONTH.

The month of July has been far less sultry than its predecessor, there having been a fair fall of rain, with some thunder storms, which somewhat laid the wheat and impeded harvest, though the month has not closed without some new appearing at market. As to yield, the prospect diminished as the crop was inspected, a good deal of blight being found in some pieces, while all the light land promises to be short; but should the weather be favourable, though last year's plenty cannot generally be looked for, we anticipate a full average yield, the deficiency in the number of grains to the ear being in many places quite made up by their being more numerous than in 1857. The hay harvest, though at one time threatened, has been concluded favourably, but a good portion of the late-cut grass has lost colour. All the root crops have been greatly benefited, and potatoes especially, as the quantity of rain has not been too great for them to bear. Spring corn, particularly barley and oats, have improved, but the rain came too late to be of use to pulse, so that beans, peas, and tares will be very deficient; the former may be made up by arrivals from Egypt, but the latter must find substitutes.

If in this humid climate the heat was too great in some places for the wheat plant, it has been found still more so in other parts of Europe; Holland, Belgium, the borders of the Rhine, France, Spain, and Italy, not being so well reported; while America, though favoured with a set-in of forcing weather after much wet, does not seem likely to gather so much as last year. In Canada about an average is expected. The previous abundance will, therefore, not only be serviceable for mixing, but as a reserve against any deficiency in the present yield, and serve to keep prices at a moderate range. In America the maize crop is yet in jeopardy from the lateness of its being sown, in consequence of floods; but Southern Europe has lost the fears which at one time prevailed for its safety. The apprehension of very low prices, which at one time began to prevail, has now disappeared, the rapidly increasing population having made good account of the liberal imports since last harvest, as foreign stocks still appear moderate. Prices during the month have not fluctuated more than 2s., leaving rates little altered. Though stocks of English in the country are held to be good, the market supplies were getting low, and the weekly sales were showing by their reduced quantities that the low rates lately paid were unsatisfactory; the amount of the last four weeks being 291,921 qrs. against 361,160 qrs. in 1857, making a decrease of 69,139 qrs.; this deficiency, be it remembered, occurring after a most abundant crop. The following quotations will show that our own rates are still below several neighbouring countries; but the settlement of prices must depend on the result of the several harvests. At Rotterdam the best red wheat was worth about 57s. 6d. per qr., rye 38s., and barley to 31s. 6d. At Antwerp, native red was quoted 54s. per qr., at Louvain 56s. At Hamburg and Berlin the top quotations were about 49s. per qr., at Stettin 48s. at Dantzic 52s. A sample of very fine heavy new high mixed has been sent on here by post. Quotations at Petersburg were about 45s. per qr.; at Odessa soft Polish was 44s. 6d. per qr.; Taganrog and Berdianski quoted 38s. to 43s. 6d. per qr. At Seville mixed wheat was held at 56s. per qr. Fine flour at Santander 42s. 9d. per sack of 280 lbs. The range of prices in Piedmont was very moderate, notwithstanding a deficient crop, some new wheat of fair weight having been sold at 40s. 6d. per qr. New wheat has been sold at Marle, in France, at 40s. per qr., and the best price for flour at Paris was about 37s. 6d. per English sack. Our receipts from the United States, from 1st September to 6th July, were in wheat and flour equal to about 1,200,000 qrs. :—this, as compared with last season, is about 65,000 qrs. short. The lake ports by last accounts were dull, being disappointed at the prices at New York, and small export trade then obtaining; but this business of late has been more important, as shown by recent arrivals here. The best white wheat at New York was about 45s. 6d. per qr., red to 40s. 6d. The finest Missouri flour was quoted equal to 42s. 6d. per sack. At Baltimore white wheat 46s. 6d. per qr., red 43s. Flour at Hobart Town has been selling at £16 to £18 per ton. The average of wheat for South Australia, in 1857, was 7s. per bushel.

The first Monday commenced on a fair supply of foreign, and very small one of English wheat. During the morning the samples sent from Kent and Essex were but few: a heavy fall of rain occurring the night previous, a good deal of the best and earliest wheat was laid; and in consequence of it, the market rose fully 2s. per qr., some holders refusing to sell at this advance, especially foreign factors. The country responded to this rise promptly, though better supplied, Leeds, Leicester, Market Rasen, and Newmarket quoting 2s. to 3s. above previous rates. Several agreed exactly with London, but more generally the improvement was 1s. to 2s., especially those places which had their market on Saturday. Liverpool, on Tuesday, advanced 2d. to 3d. per 70lbs., and on Friday another 1d. per 70lbs. was gained.

On the second Monday, the foreign supply was small, but the English improved. About an average number of samples appeared from the near counties, but the fine weather then prevailing quite checked all the upward tendency, and only the previous prices were obtained slowly. The foreign trade was firm, with little doing. The London report had its influence, and several places, as Leeds, Manchester, Spalding, and Gloucester, were all very dull. Hull, Louth, Lynn, Boston, and Bristol were all 1s. per qr. lower and Birmingham advices were down 1s. to 2s. The first market at Liverpool was heavy, and Friday's report was 1d. to 2d. per 70lbs. cheaper.

The third Monday opened on a large supply of foreign wheat, of good useful quality, with a moderate quantity of home growth, the show from Kent and Essex being fair for the time of year. The weather having continued on the whole very favourable to the crops, though somewhat rainy, and impeding harvest operations, millers would not buy without obtaining a concession of fully 2s. per qr. on former rates: those who would not accept this reduction were without being cleared till the following markets, which were quite as dull. In the country this reduction was hardly accepted; Hull, Gainsborough, Wolverhampton, Manchester, Gloucester, and several other places, quoted 1s. to 2s. per qr. lower, but Birmingham sold at 1s. less, and some localities quoted former prices. Liverpool, on Tuesday, was 1d. to 2d. per 70lbs. cheaper for the finest qualities, and 2d. to 3d. down on inferior; and on Friday there was a further decline of 1d. to 2d. per 70lbs.

The fourth Monday was commenced on moderate supplies, and the expectation that several new samples would be offered on sale from Kent and Essex was disappointed; some did appear, but only as specimens, and the Talavera sold at Chelmsford was inferior in quality to last year. The weather continuing very favourable to harvest operations, millers were reserved, and at the Kentish stands fully 1s. per qr. less money was accepted; but some factors, holding for former prices, did not place all their samples. The foreign trade was almost at a stand-still; some offers, however, at 2s. per qr. less were not accepted. A fall of rain on Tuesday night gave tone to subsequent markets, though followed by a drying north wind.

The imports into the United Kingdom for June were 573,636 qrs. wheat, and 405,549 cwts. flour, making the receipts for the year to the close of that month 2,268,368 qrs. wheat, 2,328,722 cwts. flour, equal in wheat alone to 3,432,729 qrs. The arrivals into London during the four weeks of July were 15,926 qrs. English, and 59,636 qrs. foreign wheat; the country flour in the same time being 66,330 sacks, the foreign 548 sacks, 16,602 barrels. The exports were 332 qrs. wheat; 99 cwt. flour.

The London averages commenced at 46s. 9d. per qr., and closed at 49s. 6d. The general averages began at 43s., and finished at 45s. 3d.; but these returns are generally fully a fortnight after the transactions.

The first Monday in the flour trade was noted by a rise on town-made samples of 3s. per sack, but Norfolks were only 1s. dearer. Since then the fluctuations have been unimportant, and the last market closed at 31s. per sack for Norfolks, and 43s. for the best town-made; the want of water early in the month limited the supply of country flour, but since the rains there has been a full average quantity at market.

The short arrivals of English barley, through the month, showed the dependence of consumers on foreign help; but as the first fruits of the new crop have begun to appear, more will soon be at market, especially as all malting qualities are again likely to be scarcer, and command a high range of prices. The business of the month has nearly been limited to grinding qualities of foreign, and the low rates obtaining for light qualities as compared with other grain have made a good and constant demand. There has been scarcely any fluctuation in prices, the 1s. per qr. advance of the first market being fully sustained up to the fourth Monday, when, in consequence of a heavy arrival from the Mediterranean, prices somewhat gave way. The arrivals of English barley into London during four weeks were 616 qrs., and of foreign 52,906 qrs. The exports were 1,200 qrs. The arrivals for June in the United Kingdom were 151,590 qrs., and in maize 151,318 qrs.

The malt trade has been calm through the month, and gained about 1s. per qr. on the best samples.

The oat trade has quite changed in its character in the course of the month, in consequence of the serious deficiency of the crops in Belgium, Holland, and France, producing an export trade in this grain of unusual importance on the very eve of harvest, after closing dull in June, with heavy foreign arrivals. The first Monday brought a rise of 1s. to 2s. per qr. with fair foreign supplies, and on good corn there has been no giving way since; but low Russian sorts being over-plentiful on the third Monday, sold rather in buyers' favour. With, however, a somewhat diminished supply on the fourth Monday, all good sorts were 6d. per qr. dearer, low Russian qualities alone being without improvement. The imports into London during the four weeks, in English sorts, were 1,154 qrs., in Scotch 2,102 qrs., in Irish 1,297 qrs., and in foreign 129,154 qrs.; the exports in the same time being 47,742 qrs., against 9,991 qrs. last month—making a total in two months of 57,733 qrs. The imports into Great Britain and Ireland for June were 206,908 qrs. Should this export demand continue, with our own crop scarcely an average, and Ireland in the same predicament, we may see high prices at the close of the season, unless the Russian crop proves greater than expected; but already there has been a pretty good clearance at Petersburg and Riga of old corn.

The trade in beans through the month has been firm, after an advance on the first Monday of 1s. to 2s. per qr.; but the rise has checked the sale, and the fourth Monday was duller than any of its predecessors. The arrivals in the port of London during the four weeks, in English, were 1,217 qrs., in foreign only 3,106 qrs. The imports into this country for June were 37,820 qrs.

Of English peas the supply has been almost nil, while the arrivals of Baltic and Canadian white have been fair, in consequence of orders, from the deficiency in this country. This trade was in sympathy with beans throughout the month, participating in the rise of 1s. to 2s. per qr. on the first Monday, without any subsequent change. The crop is undoubtedly very short; but some very fair, though small, new white boilers were offering on the fourth Monday at 50s. and maples at 44s. per qr. The arrivals in London in the four weeks were only 302 qrs. English, but the foreign were 5,945 qrs.: this, on short stocks, must soon go into consumption, even in times of limited demand; and whatever may be the price of boilers, hog peas must again rule high. The total imports into the kingdom for June were 21,781 qrs.

The export trade in linseed during the month has about equalled the arrivals, being 13,175 qrs. against 13,315. The market therefore has gained fully 1s. per qr.; and, were it not for good stocks on hand, extravagant rates must have been paid. Cakes, too, have increased in value about 10s. per ton, a fall of rain first making them dull, but the return of dry weather originating an active demand.

In the seed trade but little has been passing. Several parts of France and Germany report almost a failure of the crop of cloverseed; and a demand for the latter country sprung up in consequence, increasing the value here about 5s. per cwt.; but this inquiry has ceased for the present, and no speculation appears here, as our own crop promises to be excellent; and should it be warm in August, there can be little doubt of an abundance; while mustard-seed is said to be blighted in Lincolnshire, but is well grown in Essex. The new tares appearing are very small, and as much as 15s. per bushel has been asked for them, which dealers seem in nowise inclined to pay. New carraway-seed has been exhibited remarkably fine, without having a fixed price. Canary-seed brought 95s. per qr. on the last Monday, but it can hardly be expected to realize this on receipt of new samples. Rape-seed, hemp-seed, coriander, and other seeds have maintained their value, with, however, but a retail demand.

CURRENCY PER IMPERIAL MEASURE.

Shillings per Quarter

Wheat, new, Essex and Kent, white	41 to	50	red	38 to	41
Norfolk, Linc. and Yorks., red				39	43
Barley, malting	— to	—	Chevalier	—	—
Distilling, new	29	31	Grinding	25	30
Malt, Essex, Norfolk, and Suffolk	56	64	fine	66	68
Kingston, Ware, and town made	56	64	,,	66	68
Brown	52	54		—	—
Rye	—	—		28	30
Oats, English, feed	22	27	Potato	27	35
Scotch, feed	23	27 31	Potato	28	35
Irish, feed, white	22	25	fine	26	32
Ditto, black	22	24	,,	—	25
Beans, Mazagan	36	39	Ticks	37	38
Harrow	37	40	Pigeon	41	46
Peas, white boilers	40	48	Maple .. 43 44 .. Grey	44	46
Flour, per sack of 280lbs., Town, Households	36s.		fine	40	43
Country	31	33	Households	31	36
Norfolk and Suffolk, ex-ship				29	31

FOREIGN GRAIN.

Shillings per Quarter.

Wheat, Dantzic, mixed	45	—	high do. — — extra	—	53
Konigsberg	40	48	,, — —	—	—
Rostock	45	—	fine 48 —	—	—
American, white	43	51	red 42 47	—	—
Pomera., Meckbg., & Uckermrk, red	42	47		—	—
Silesian, red	42	45	white	43	47
Danish and Holstein				40	45
Russian, hard	39	43	French 42 45 white	42	47
St. Petersburg and Riga				40	44
Rhine and Belgium				—	47
Barley, grinding	22	27	Distilling	29	30
Oats, Dutch, brew, and Polands	24	30	Feed	23	27
Danish and Swedish, feed	24	26	Stralsund	25	28
Russian				22	24
Beans, Friesland and Holstein				36	40
Konigsberg	36	40	Egyptian	35	37
Peas, feeding	42	44	fine boilers	44	47
Indian Corn, white	34	36	yellow	34	36
Flour, per sack, French	33	37	Spanish	—	—
American, per barrel, sour	20	22	sweet	24	25

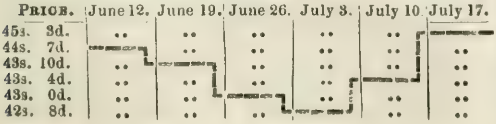
IMPERIAL AVERAGES.

For the last Six Weeks:	Wheat. s.	d.	Barley. s.	d.	Oats. s.	d.	Rye. s.	d.	Beans. s.	d	Peas. s.	d.
June 12, 1858	44	7	33	5	26	0	33	0	42	10	44	3
June 19, 1858	43	10	30	7	26	10	26	0	42	5	43	4
June 26, 1858	43	0	31	1	25	10	33	10	42	3	41	3
July 3, 1858	42	8	30	8	25	11	33	2	42	4	42	4
July 10, 1858	43	4	29	11	26	3	28	11	42	3	44	8
July 17, 1858	45	3	30	4	26	5	30	8	43	3	44	5
Aggregate average	43	9	31	0	26	2	30	11	42	7	43	4
Sametime last year	62	1	38	3	27	2	40	10	45	3	43	8

COMPARATIVE AVERAGES—1858-57.

From last Friday's *Gaz.*		s.	d.	From *Gazette* of 1857.		s.	d.
Wheat	91,232 qrs.	45	3	Wheat	81,704 qrs.	63	8
Barley	1,343	30	4	Barley	1,038	37	9
Oats	2,734	26	5	Oats	6,102	27	9
Rye	93	30	8	Rye	76	42	7
Beans	1,357	43	3	Beans	2,698	45	11
Peas	77	44	5	Peas	261	44	4

FLUCTUATIONS IN THE AVERAGE PRICE OF WHEAT



MONTHLY RETURN.

An Account shewing the Quantities of Corn Grain, Meal, and Flour, imported into the United Kingdom, and admitted to Home Consumption, in the month of June, 1858.

Species of Corn, Grain, Meal, and Flour.	Imported from foreign Countries.		Imported from British Possessions out of Europe		Total.	
	qrs.	bush.	qrs.	bush.	qrs.	bush.
Wheat	549166	1	24469	7	573636	0
Barley	151590	2	..		151590	2
Oats	205928	5	980	0	206908	5
Rye	12832	6	..		12832	6
Peas	18885	5	2895	5	21781	2
Beans	37820	7	..		37820	7
Maize or Indian Corn	150936	6	382	0	151318	6
Buck Wheat	137	7	..		137	7
Beer or Bigg	..		..		..	
Total of Corn and Grain	1127298	7	28727	4	1156026	3

	cwts.	qr. lb.	cwts.	qr. lb.	cwts.	qr. lb.
Wheat Meal and Flour	369127	3 17	36421	1 27	405549	1 16
Barley Meal	..		..		..	
Oat Meal	2	0 0	..		2	0 0
Rye Meal	119	2 14	..		119	2 14
Pea Meal	0	2 0	..		0	2 0
Indian Meal	363	3 0	89	1 4	..	
Buck Wheat Meal	..		..		453	0 4
Total of Meal and Flour.	369613	3 3	36510	3 3	406124	2 6

PRICES OF SEEDS.

BRITISH SEEDS.

Cloverseed, red —s. to —s., extra —s.,	white – s. to – s.
Trefoil	— s. to —s.
Tares, Winter, new, per bushel	0s. 0d. to 0s. 0d.
Tares, Spring, per bushel	0s. 0d. to 0s. 0d.
Mustardseed, per bush., new 17s. to 25s.,	brown 13s. to 15s.
Coriander, per cwt.	20s. to 26s.
Canary, per qr.	80s. to 95s.
Linseed, per qr., sowing —s. to —s...	crushing 66s. to 68s.
Linseed Cakes, per ton	£9 0s. to £10 0s.
Rapeseed, per qr.	70s. to 72s.
Rape Cake, per ton	£5 10s. to £6 0s.

FOREIGN SEEDS, &c.

Cloverseed, red 40s. to 46s.,	white 50s. to 60s
Trefoil,	17s. to 18s.
Hempseed, small, per qr.	Dutch 42s. to 47s.
Coriander, per cwt.	17s. to 26s.
Carraway ,,	44s. to 46s.
Linseed, per qr., Baltic 58s. to 62s.....	Bombay 60s. to 62s.
Linseed Cake, per ton	£9 10s. to £11 0s.
Rapeseed, Dutch	68s. to 72s.
Rape Cake, per ton	£5 0s. to £6 0s.

HOP MARKET.

BOROUGH, Monday, July 26.—Very little business doing in our market. The new growth is reported to be progressing very favourably. Mease & Wild.

MAIDSTONE, July 22.—During the past few days we notice an increase of vermin. Lice abound in many of the plantations, but they do not as yet appear to have injured the bine or the young shoots. The appearance thus far is good, and the duty goes up. Many judges are of opinion that the crop will be as large, or nearly so, as in 1855, and very few, if any, will bet against £230,000. Allington.—The bine is looking very well, the vermin not having injured it. Hitherto it has done its work. Aylesford.—The weather has been very favourable, and the hops grow apace. A good bine, and not much vermin. Artington.—Our hop plantations look well for a crop. The young shoots are very promising, and the bur is coming out strongly. Appearances are in favour of a heavy duty. Otham.—Our hops still improve; the bine is strong, and although backward at first, it now throws out good healthy shoots. The bur is coming out and thus far looks well. Boxley.—Since the late rains the hop grounds have greatly improved, but we find vermin at places.—Bearsted.—Our hop plantations are looking well; the bine is strong and healthy. The weather has of late been in our favour, and we look for a large crop.—*Sussex Express.*

POTATO MARKETS.

BOROUGH AND SPITALFIELDS.

LONDON, MONDAY, July 26. — Very large supplies of home-grown Potatoes have appeared on sale since our last report, in good condition. The imports have amounted to only 116 baskets from Boulogne. A full average business is doing, and prices range from 50s. to 105s. per ton.

COUNTRY POTATO MARKETS.—YORK, July 17: New potatoes sell at 4d. per peck and 1s. 4d. per quartern. LEEDS, July 20: A fair supply of new potatoes, which sold at 9½d. to 10d. per 21lbs. wholesale, and 1d. per lb. retail. RICHMOND, July 17: New potatoes 1s. 8d. to 2s. per peck. MANCHESTER, July 22: New potatoes sell at 8s. to 10s. per 252lbs.

PERTH POTATO TRADE.—The potato market is now fully supplied, and prices are very moderate. Best sorts sell at 2d. per lb., but in many cases 1½d. per 2lbs. is the retail price. —*Perth Courier.*

PRICES OF BUTTER, CHEESE, HAMS, &c

BUTTER, per cwt.:	s.	s.	CHEESE, per cwt.:				s.	s.
Friesland	106 to	112	Cheshire	64	80	new	54	62
Kiel	—	—	Cheddar	72	80	,,	60	68
Dorset	110	114	Double Glouc.	56	72	,,	52	58
Carlow	100	108	HAMS:					
Waterford	102	108	York				78	84
Cork,	98	106	Westmoreland				78	84
Limerick	96	104	Irish				76	86
Sligo	94	106	BACON: Wiltshire, dried				74	78
FRESH, per dozen..12s. 0d. to 14s. 0d.			Irish, green				66	70

ENGLISH BUTTER MARKET.

LONDON, MONDAY, July 26.—Our trade is firm, at the same prices.

Dorset, fine	112s. to 116s. per cwt.
Ditto, middling	100s. to 106s. ,,
Devon	108s. to 112s. ,,
Fresh	12s. to 14s. per dozen.

BELFAST, (Thursday last.)—Butter: Shipping price, 94s. to 100s. per cwt.; firkins and crocks, 10d. to 10½d. per lb Bacon, 56s. to 60s.; Hams, prime 74s. to 78s., second quality 60s. to 66s. per cwt. Prime mess Pork, 87s. 6d. per brl.; Beef, 120s. to 130s. per tierce; Irish Lard, in bladders, 72s. to 76s.; kegs or firkins, 64s. to 66s. per cwt.

LONDONDERRY, (Thursday last.)—The supply large, and in consequence prices rather lower: firkins, first 11d., seconds 10¼d. to 10⅜d., third 9½d. to 9¾d.; fourth 8¾d.; butts, fine 10¾d. to 11d., good 10d. to 10¼d., middling 8d. to 9d. per lb.

GLASGOW.—There was only 1 cart in the bazaar, which was not sold till mid-day, but there being a plentiful supply in the weighhouse, 22 tons passed the scale, at about last week's prices. Old cheese 48s. to 52s., new do. 39s. to 42s., skim do. 20s. to 22s. per cwt.

OIL MARKET.

OILS.

Olive, Florence, half-chests	£0 18 0 to	£0 0 0
Lucca	6 0 0	0 0 0
Gallipoli (252 gals.)	45 0 0	45 10 0
Spanish	43 10 0	44 0 0
Linseed (cwt.)	1 14 6	1 14 9
Rape, Pale	2 8 6	2 10 0
Brown	2 5 0	2 6 0
Cod (tun)	34 0 0	35 0 0
Seal, Pale	37 0 0	38 0 0
Do. Brown, Yel. &c	29 0 0	31 0 0
Sperm	82 0 0	85 0 0
Head Matter	85 0 0	88 0 0
Southern	37 10 0	58 0 0
Cocoa-nut (cwt.)	1 16 0	1 19 0
Palm	1 12 0	1 18 0

RESIN.

Yellow (per cwt.)	£0 6 0	0 6 6
Transparent	0 6 0	0 6 6

PITCH.

British (per cwt.)	£0 6 6	0 0 0
Archangel	0 0 0	0 0 0
Stockholm	0 10 0	0 0 0

TURPENTINE.

Spirits (per cwt.)	£1 19 0	0 0 0
In Puncheons	2 0 0	0 0 0
Rough	0 9 6	0 9 9

TAR.

American	£0 0 0	0 0 0
Archangel	0 0 0	0 16 0
Stockholm	0 0 0	0 15 0

WHALEBONE.

Greenland, full size (per ton).	£600 0	620 0 0
South Sea	470 0	480 0 0

HAY MARKETS.

SATURDAY, July 24.—SMITHFIELD.- Both hay and straw sold heavily at our quotations.

CUMBERLAND. — A full supply, and a heavy demand at drooping prices.

WHITECHAPEL.—Trade heavy, on rather lower terms.

At per Load of 36 Trusses.

	SMITHFIELD.		CUMBERLAND.		WHITECHAPEL	
MEADOW HAY OLD	65s. to	85s.	66s. to	86s.	65s. to	85s.
NEW DITTO	65s.	80s.	66s.	82s.	65s.	80s.
CLOVER DITTO OLD	85s.	105s.	85s.	106s.	85s.	105s.
NEW DITTO	85s.	95s.	86s.	97s.	85s.	95s.
STRAW	34s.	38s.	35s.	39s.	34s.	38s.

COVENT GARDEN MARKET.

LONDON, SATURDAY, July 24. — Trade continues brisk and the supply is equal to the demand. Cherries are not now imported, but Apricots, Plums, and Figs, are still supplied from foreign sources. Strawberries are not now so good or plentiful as they were. Some ripe French Pears chiefly Jargonels, may now be obtained. Barcelona Nuts fetch 20s. per bushel; new Brazils, 1s. 6d. do.; Spanish, 14s. do; Almonds, 24s.; Walnuts, kilndried, 20s. do. Among Vegetables are some nice Cauliflowers. English Peas are now plentiful, and since the late rains they have improved in quality. Of the latter there are still arrivals from France. Greens are plentiful, as are also French Beans. New Potatoes are largely supplied, and green Artichokes fetch from 4s. to 6s. per dozen. Cucumbers plentiful. Cut flowers chiefly consist of Orchids, Gardenias, Heliotropes, Geraniums, Violets, Mignonette, Heaths, and Roses.

FRUIT.

	s. d.	s. d.		s. d.	s. d.
Apricots, per doz.	2 0 to	4 0	Pineapples, per lb.	5 0 to	7 0
Apples, per half sieve	7 0	8 0	Currants, black, p. ½-s.	4 0	5 0
Oranges, per doz.	1 0	1 6	Do. red	3 0	4 0
Melons, each	3 0	5 0	Do. white	3 0	4 0
Cherries, per lb	0 6	1 0	Lemons, per dozen	1 0	2 0
Cobs	35 0	40 0	Peaches, per dozen	10 0	20 0
Grapes, new, per lb.	4 0	8 0	Strawberries, per pun.	1 0	2 0
Nectarines, per dozen	8 0	15 0			

VEGETABLES.

	s. d.	s. d.		s. d.	s. d.
Cauliflowers each	0 2 to	0 4	Tomatoes, per half-sieve	0 0 to	0 0
Broccoli, per bundle	0 0	0 0	Leeks, per bunch	0 2	0 4
Greens, per doz. bunches	2 0	4 0	Celery, per bundle	1 0	2 0
Seakale, per punnet	0 0	0 0	Shallots, per lb.	0 6	0 8
French Beans, per 100	2 0	3 0	Garlic, per lb.	0 6	0 8
Asparagus, per bundle	0 0	0 0	Lettuce, cab., per score	1 0	1 6
Rhubarb, per bundle	0 0	0 0	Do., Cos, per score	1 0	1 6
Potatoes, per ton	60 0	100 0	Endive, per dozen	2 6	3 0
Do. per bush.	2 0	2 9	Radishes, turnip, per doz.	0 0	0 0
Do. per cwt.	4 0	6 0	Horseradish, per bundle.	1 6	4 0
Do. New, per lb.	0 2	0 4	Mushrooms, per pottle	2 0	2 6
Carrots, per bunch	0 6	0 8	Parsley, per 12 bunches	2 0	4 0
Turnips, new per bunch.	0 4	0 8	Basil, green, per bunch	0 0	0 0
Spinach, per sieve	1 6	2 0	Marjoram, per bunch	0 0	0 0
Cucumbers, per dozen	6 0	12 0	Savory, per bunch	0 2	0 4
Beet, per dozen	1 0	2 0	Mint, green, per bunch	0 2	0 4

CHICORY.

LONDON, SATURDAY, July 24.—There is very little demand for either English or foreign Chicory; and, in some instances, prices have a downward tendency.

ENGLISH, per ton	£ 0 0 to	£ 0 0	ANTWERP	£10 0 to	£10 10
HARLINGEN	10 0	10 5	DACKUM	0 0	0 0
BRUGES	10 0	10 5	GUERNSEY	0 0	0 0
HAMBURG	10 0	11 0	BELGIUM	0 0	0 0

SPIRITS.

LONDON, SATURDAY, July 24.—There has been a moderate inquiry for Rum this week, at the late decline in value. Brandy supports previous rates; but the demand for it is in a sluggish state. Gin, 22 per cent. underproof, is quoted at 9s. 2d. per gallon.

RUM.

	s. d.	s. d.		s. d.	s. d.
E. India, proof per gal.	1 7 to	1 8	Jamaica. 26 to 29 O.P.	4 3 to	4 4
Leewards, do.	1 6	1 9	,, 32 36 ,,	4 6	4 8
,, 10 to 20 O.P.	2 2	3 0	Better qualities 32 36 ,,	4 4	4 9
,, 21 29 ,,	3 8	3 10			
Demerara 30 34 ,,	3 8	4 2	Superior Marks 36 40 ,,	5 3	6 0
,, 34 40 ,,	4 2	4 4			

BRANDY—COGNAC.

Vintage	Shipped by Martell.				Shipped by Hennessy.				Shipped by Otard.				Shipped by Viny. Proprietors' Company.			
	s.	d.	s.	d.	s.	d.	s.	d.	s.	d.	s.	d.	s.	d.	s.	d.
1854	14	6	15	4	14	6	15	4	0	0	0	0	0	0	0	0
1855	13	2	13	8	13	2	13	8	0	0	0	0	0	0	0	0

Hhds. 2d. per gallon higher. Puncheons scarce.

Other Shippers	6 6 to	12 0
HOLLANDS, Geneva fine, for duty	3 8	4 5
Other qualities, to arrive and on the quay	3 2	4 0
BRITISH GIN, for exportation, proof...hhds.	3 10	4 6

BRITISH SPIRITS.

GIN, proof, cash	101	0 0

TIMBER.

LONDON, SATURDAY, July 24.– Our market is devoid of animation. In prices, however, we have no change to report.

Per load—	£ s.	£ s.		£ s.	£ s.
Quebec, red pine	3 5 to	4 10	DEALS, Yel. Pine, per reduced C.:		
Yel. Pine	3 10	4 0	Canada, 1st quality.	15 0 to	16 0
Quebec Oak, White	6 0	6 5	Do. 2nd do.	10 0	11 0
,, Birch	4 0	4 15	Archangel Yellow	16 0	16 0
,, Elm	4 10	5 10	Memel	13 0	14 0
Dantzic Oak	4 0	6 0	Gothenburg Yellow.	13 0	14 0
Memel Fir	3 10	4 5	Do. White	11 0	12 0
Swedish	2 10	3 0	Gefle Yellow, 14 ft.	30 0	0 0
Masts, Qubc. Red Pine	6 0	6 10	Christiania, per C. 12 ft. by 3 by 9 in:		
Do. Yellow Pine	5 0	6 10	Yellow	24 0	28 0
Lathwood, Dantzic fm	8 0	9 10	White	19 0	24 0
Do. Memel	10 0	11 0	Deck Plank, Dantzic,		
Do. Quebec	5 0	5 5	per 40 ft. by 3 in.	1 0	1 10
DEALS, per C. 12 ft. by 3 by 9 in.:			Staves, per Standard M.:		
Quebec Wh. Spruce.	9 0	11 5	Quebec Pipe	75 0	0 0
Do. Red Pine	11 10	17 5	Do. Puncheon	20 0	23 6
St. John Wh. Spruce	11 11	15 0	Baltic Crown Pipe.	140 0	145 0

LEADENHALL LEATHER MARKET

LONDON, SATURDAY, July 24.—The supplies of Leather on sale here have been very moderate. Prime goods have ruled very active, and prices have advanced ½d. to 1d. per lb. In other kinds a fair business has been done, at fully last week's prices.

CROP HIDES.

ENGLISH

lbs.	lbs.	d.	d.
28 to	35	13 to	15
36	40	13	14½
40	45	13½	15½
46	50	14½	16½
50	55	15	17
56	60	16	18

BUTTS.

ENGLISH.

lbs.	lbs.	d.	d.
14	16	17	20½
17	20	17	21
21	24	18	23
25	28	21	25
29	32	22	26
33	36	24	28

FOREIGN.

lbs.	lbs.	d.	d.
14	16	—	—
16	20	17	20
21	24	17	21
25	28	18	22
29	32	20	24
33	36	22	25
36	45	—	—
45	50	—	—

OFFAL.

	d.	d.
English Shoulders	13	17
Do. Cheeks and Faces	7	10
Do. Bellies	8	9½
Do. Middles	11	12
Foreign Shoulders	12	15
Do. Necks	10	12
Do. Bellies	7	9½
Do. Middles do.	11	12
Dressing Hide Shoulders	10	12
D. do. Bellies	7	8
Kip Shoulders	5	8
Do. Bellies	6	7

DRESSING HIDES.

	lbs.	lbs.	d.	d.
Common	20 to	24	12 to	14
Do.	25	28	12	14
Do.	30	34	12	14
Do.	35	40	13	15
Saddlers	30	35	14	17
Do.	36	50	15	18
Bulls			11	13
Shaved	14	16	16	17
Do.	17	19	15	17
Do.	20	23	13½	16
Do.	24	28	13	16
Scotch do.	16	24	13½	17
Coach, per Hide			25s. to	30s.

HORSE BUTTS. SHAVED.

	d.	d.	d.	d.
English	11 to	12	14 to	15½
Spanish	10½	11	14	15

HORSE HIDES.

	lbs.	lbs.	d.	d.
English	13 to	18	11 to	14
Do. without butts	9	14	12	14
			s. d.	s. d
Spanish salted, without butts, per hide.	6	9	11 0	13 6
Do. do. do.	9	12	12 0	15 0
Do. do. do. inferior			6 0	8 0
Do. dry do.	6	8	8 0	11 0
Do. do. do.	9	11	10 0	12 6
Do. do. do. inferior			5 0	7 0

CALF SKINS.

Av. weight. lbs.	lbs.	Unrounded. d.	d.	Rounded. d.	d
20 to	28	14 to	16	16 to	22
30	35	14	17	16	22
35	40	15	18	16	23
40	45	15	18	16	24
45	50	15	18	16	24
50	55	15	17	16	23
55	60	15	17	16	22
60	70	14	17	15	21
70	80	14	16	15	20
80	90	14	16	15	20
90	100	13	16	14	19
100	120	13	15	14	18

KIPS.

	lbs.	lbs.	d.	d.
Petersburgh	4 to	7	17 to	19
Do.	7	9	16	18½
Do.	9	10	15	17½
Do.	11	13	15	17
E. Ind. dryaltd.	5	7	18	22
Do. do.	7	9	16	19
Do. seconds			14	17
Do. thirds			12	14
Do. inferior			8	10

SUNDRIES.

	s.	s.
Hog Skins, best ……each	12 to	19
Do. seconds … ,,	7	12
Seal Skins, split, per doz.	46	66
Do. for bindings ,,	34	66
Calf Skins, Sumach-tanned ,,	30	45
Do. white ,,	25	35
Horse Hides, white, each	8	13
Sheep Skins—	d.	d.
Basils, unstrained, per lb.	7	13½
Do. strained ,,	7	14
Do. facing, per doz.	5s.	16s
Tan, Sheep, & Lambs ,,	10	16
White Sheep, per 120	50	90
Do. Lambs, ,,	40	80
Do. Sheep & Lambs, strained, per doz.	5	14
Sumach Roans, per doz.	16	30
Do. Skivers, ,,	5	12
Bark Skivers, ,,	7	12
Hide Splits, per lb.	9 to	11d

BIRMINGHAM, SATURDAY, JULY 10.

HIDES.	Per lb. s.	d.		s.	d.
95lbs. and upwards	0	0	..	0	5¾
85lbs. to 94lbs.	0	0	..	0	5⅞
75lbs. to 84lbs.	0	0	..	0	5⅝
65lbs. to 74lbs.	0	0	..	0	4⅜
56lbs. to 64lbs.	0	0	..	0	4¼
55lbs. and under	0	0	..	0	4
Cows	0	3⅞	..	0	4⅛
Flawed and irregular	0	3⅞	..	0	4¼
Horse each	0	0	..	0	0
Bulls	0	0	..	0	3¼

CALF.	Per lb. s.	d.		s.	d.
17lbs. and upwards	0	0	..	0	5¼
12lbs. to 16lbs.	0	0	..	0	5½
9lbs. to 11lbs.	0	0	..	0	5⅝
Light	0	0	..	0	5⅛
Flawed & irregular	0	0	..	0	4¾
WOOL SKINS	4	6	..	8	9
PELTS	1	2½	..	1	8½
LAMBS	2	3	..	3	4

HIDE AND SKIN MARKETS.

LONDON, SATURDAY JULY 24.

MARKET HIDES:	s.	d.	s.	d.
56 to 64lbs. ……per lb.	0	3½ to	0	3¾
64 to 72lbs.	0	3¾	0	4
72 to 80lbs.	0	4	0	4½
80 to 88lbs.	0	4½	0	4¾
88 to 96lbs.	0	4¾	0	5
96 to 104lbs.	0	0	0	0
104 to 112lbs.	0	0	0	0

	s.	d.	s.	d.
HORSE HIDES, each	9	0 to	0	
CALF SKINS, light	2	0	3	6
Do. full	5	6	6	0
Shearling	1	6	2	0
Half-bred Sheep	0	0	0	0
Downs	0	0	0	0
Polled Sheep	0	0	0	
Lambs	2	3	3	

FLAX, HEMP, COIR, &c.

LONDON, SATURDAY, July 24.—For nearly all kinds of Flax the demand rules steady, and prices are well supported. In Hemp very little is doing, at barely last week's currency. Jute and Coir goods are in active request, at extreme rates.

TALLOW.

OFFICIAL MARKET LETTER.

[ISSUED BY THE TRADE EVERY FRIDAY NIGHT.]

	s.	d.	s.	d.
Town Tal., p. cwt	50	0	0	0
Fat by ditto	2	7½	0	0
Melted stuff	34	6	0	0
Rough stuff	20	0	0	0
Graves	17	6	0	0
Good Dregs	7	0	0	0

BARK, &c.

LONDON, SATURDAY, JULY 24.

	£	s.	£	s.
English, per load of 45 cwt., del. in London	17	0 to	20	0
Coppice	18	0	21	0
Dutch, per ton	5	5	5	10
Hambro'	4	10	5	10
Antwerp Tree	5	10	7	0
Do. Coppice	6	0	7	10
Mimosa, Chopped	8	0	9	10
Do. Ground	9	0	10	10
Do. Long		0	6	10
Cork Tree, Barbary	7	0	7	10
Do. Leghorn	6	0	7	0
Valonia, Smyrna, p. ton	11	0	14	0
Do. Camata	13	0	14	0
Do. Morea	9	0	11	0
Terra Japonica Gambier	13	10	14	0
Terra Japonica Cutch	32	0	34	0
Divi Divi	9	0	10	0
Myrabolams	7	0	10	0
Sumach, Sicily, p. cwt.	0	13	0	10

METALS.

LONDON, SATURDAY, July 24.—Scotch pig is a slow inquiry, at 52s. cash. Manufactured parcels move off heavily. Swedish Iron is selling at £13 to £13 10s. Copper is very firm; but not dearer. In Lead, a full average business. Spanish pig, £20 to £20 10s.; English £21 to £21 5s. Spelter is very inactive, at £24 to £24 2s. 6d.; and Zinc, £31 10s. to £32 per ton. Tin moves off freely, at 118s. to 119s. for Banka, and 116s. to 117s. for Straits. Tin plates are steady at full quotations.

ENGLISH IRON.

Bar and Bolt *a* ……per ton	£7 0 0
In Wales *a*	6 0 0
In Liverpool *a*	8 0 0
In Staffordshire *a*	9 5 0
*Sheets, single *a*	£9 5 0—10 0 0
* Do. double *a*	11 0 0
*Hoop *a*	£8 15 0—9 0 0
*Nail rod, round *a*	£7 10 0—8 0 0
Do. square *a*	8 10 0
Rails, Wales, *c*	£5 10 0—6 0 0
Do. Staffordshire *c.*	£7 15—0 0 0
Railway Chairs, Clyde	4 0 0
Pig, No. 1, Clyde *c*	£2 13 0—0 0 0
3-5ths No. 1 & 2-5ths No. 3	3 10 0
No. 1, in Wales *b*	4 0 0
Scotch Pig, No. 1, in Lond.	3 14 0
Stirling's Non-laminating or Hardened Surface Rails	£9—9 2 0
Coal-blast, No. 1 Foun.	6 10 0
Charcoal bars	14 10 0
Stirling's Patent toughened Pigs, in Glasgow	3 10 6
Do. in Wales	£4—4 5 0

FOREIGN IRON *a*.

Swedish	£13 0 0—13 10 0
Russian CCND	14 10 0
Ind. Ch. Pigs in London	6 0 0

FOREIGN STEEL *a*.

Swedish keg, nom	£18 0 0—0 0 0

ZINC.

In sheets *d*	£31 10 0—32 0 0

SPELTER *c*.

On the spot	£24 0 0—24 2 6
To arrive	24 10 0

ENGLISH COPPER.

Tile, 14 to 28lbs. *a*	107 10 0
Tough Cake *a*	107 10 0
Sheath and Bolts *a* ..per lb.	0 0 0
Sheet *a*	0 1 0
Bottoms *a*	0 1 0
Yellow Metal *a*	0 1 0
Wetterstedt's Patent Metal† per cwt.	2 1 0

ENGLISH LEAD *a*.

Pig, per ton	£21 0 0—21 5 0
Sheet	£22 5 0—22 10 0

FOREIGN LEAD *a*.

Spanish in bond, p. ton	£20 0-20 10

ENGLISH TIN *e*.

Block, per ton	£111 0 0—112 0 0
Bar	£ 0 0 0—112 0 0

FOREIGN TIN *c*.

Banca	£118 0 0—119 0 0
Straits (uncert.)	£116 0 0—117 0 0

TIN PLATES *b*.

IC Charcoal, per box	£1 12—0 0 0
IX do	£1 18 0—0 0 0
IC Coke	£1 5 0—1 5 0
IX do	1 11 0—1 12 6
Canada Plates ……per ton	14 10 0
QCKSILVER *f*. per lb	1s. 11d.—2s.

TERMS.—*a*, 2½ per cent. dis.; *b*, 3 ditto; *c*, nett; *d*, 1½ per cent. dis.; *e*, ditto; *f*, 1½ ditto. Delivered in Liverpool, 10s. per ton less.

* Cold blast, f.o.b. in Wales.

† Discount for cash in fourteen days, 5 per cent.

MANURES.

PRICES CURRENT OF GUANO, &c.

	£	s.	d.		£	s.	d.
PERUVIAN GUANO, (per ton, for 30 tons) nominal	£13	5	0	to	£ 0	0	0
Do. Do. ……(under 30 tons)	14	0	0		0	0	0
BOLIVIAN GUANO ……none	0	0	0		0	0	0

ARTIFICIAL MANURES, &c.

	£	s.	d.		£	s.	d.
Nitrate Soda (per ton)	£18	0	0	to	£20	0	0
Nitrate Potash or Saltpetre	29	0	0		30	0	0
Sulpht. Ammonia	17	0	0		18	0	0
Muriate ditto	27	0	0		28	0	0
Superphospht. of Lime	5	10	0		6	0	0
Soda Ash, or Alkali	9	0	0		10	0	0
Gypsum	2	0	0		2	10	0
Coprolite	3	10	0		3	15	0
Sulph. of Copper or Roman Vitriol, for Wheat steeping	45	0	0	to	47	0	0
Salt	1	0	0		1	10	0
Bones, Dust, per qr.	1	5	0		1	6	0
Do. ½-inch	1	4	0		1	5	0
Oil Vitriol, concentrated, per lb.	0	0	1		0	0	0
Do. Brown	0	0	0¾		0	0	0

OIL-CAKES.

	£	s.	d.		£	s.	d.
Linseed-cakes, per ton—							
Thin American, in brls. or bags	£10	7	6		£10	15	0
Thick do. round (none)					0	0	0
Marseilles	£9	10	0	to	£10	0	0
English	10	10	0		0	0	0
Rape-cakes, pr ton	6	0	0		6	10	0

JOHN KEEN, 35, Leadenhall-street,
(Late Odams, Pickford, and Keen.)

Agricultural Chemical Works, Stowmarket, Suffolk.

		£	s.	d.
Prentice's Cereal Manure for Corn Crops	per ton	£8	10	0
Prentice's Turnip Manure	,,	7	0	0
Prentice's Superphosphate of Lime	,,	6	10	0

COAL MARKET.

	Monday, July 19. s. d.	Wednesday, July 21. s. d.	Friday, July 23. s. d.
WALLSEND, Haswell	17 0	—	—
Do. Hetton	17 0	17 3	17 6
Do. Lambton	16 6	—	—
Do. Stewart	—	17 0	17 0
Do. Cassop	—	16 0	16 6
Do. Heugh Hall	15 0	—	15 6
Do. Tees	17 0	—	—
Do. Riddell	14 3	—	—
TANFIELD MOOR	—	—	14 9
HARTLEY	14 6	15 0	14 9

SHIPS AT MARKET.—July 19th, 53; July 21st, 30; July 23rd, 45. Total, 128; sold 112.

WOOL MARKETS.

ENGLISH WOOL MARKET.

LONDON, MONDAY, July 26.—Owing to the large supplies of wool now on offer at public sale, the demand for English qualities has fallen off, and in some instances low descriptions were sold at a slight reduction in prices. An increased supply is on the market, and holders evince some anxiety to get out of stock.

Per pack of 240lbs.		£	s.		£	s.
Fleeces—	Southdown Hogs	£14	10	to	£15	0
Do.	Half-bred Hogs	14	0		15	0
Do.	Kent	13	10		14	10
Do.	Southdown Ewes and Wethers	13	10		14	0
Do.	Leicester do	13	0		13	10
Sorts—	Clothing, picklock	15	0		16	0
Do.	Prime and picklock	14	0		14	10
Do.	Choice	13	10		14	0
Do.	Super	12	0		13	0
Do.	Combing—Wether matching	15	10		16	0
Do.	Picklock	13	0		14	0
Do.	Common	12	0		12	10
Do.	Hog matching	17	0		18	0
Do.	Picklock matching	15	0		15	10
Do.	Super do.	12	10		13	0

BRADFORD WOOL MARKET, (Thursday.)—The sales of the week are not large, spinners buying to cover orders on hand. The prices ruling in the country are higher than can be realized in this market. Noils and brokes without change, Yarns: The export houses are buying more extensively than for some months past, and as old stocks are cleared off, orders are only accepted at a price more commensurate with the cost. Cotton yarns about the same as last week. Pieces: There has been a fair attendance of buyers to-day, but the advance demanded somewhat restricted operations. — *Bradford Observer.*

BRISTOL WOOL SALE was numerously attended by buyers and others. The sale was under the direction of Mr. T. Warren, broker, for whom Mr. Coombs acted as auctioneer. There were 46 parcels of wool put down on the list for competition, and they were placed in their respective allotments for inspection. The bidding was not so active as might have been desired. The following was the business done: 80 fleeces, wethers, at 13$\frac{7}{8}$d. per lb.; 60 ditto, tegs, 14$\frac{3}{4}$d.; 180 prime tegs, 15$\frac{1}{4}$d.; 46 wethers, 13$\frac{3}{4}$d.; 95 tegs, 14$\frac{1}{4}$d.; 126 wethers, 13$\frac{1}{2}$d.; 280 ditto, 14$\frac{1}{4}$d.; 200 (150 wethers and 50 tegs), 14d., two sheets Cots., 9$\frac{3}{4}$d.; 120 tegs, 14$\frac{3}{4}$d.; 250 wethers, 14d.; one sheet of lamb wool, 13$\frac{1}{2}$d.; one superior combing, 14d.; one superior lamb, 13d.; one combing skin, 13d.; 200 wethers; 13$\frac{1}{2}$; 130 tegs, 14$\frac{1}{2}$d.; 320 wethers, 14$\frac{3}{8}$d.; 85 wethers, 13d., 130 wethers (Downs), 14d.; 80 tegs, 14$\frac{3}{8}$d.; 250 wethers, 13$\frac{3}{4}$; two sheets lamb, 13$\frac{1}{2}$d; 70 wethers, 13$\frac{5}{8}$; 40 tegs, 14$\frac{3}{4}$d., 31 (15 wethers and 16 tegs), 13$\frac{1}{2}$d.; one sheet shorn lamb; 13$\frac{1}{8}$d.; 250 (120 wethers and 180 tegs), 14d. For two lots of super. skin and a lot of coarse wool there was no bidding. Two bales of Australian sold at 16d. per lb., the amount of the first bid; and four bales of Cape went at 10d. The principal purchasers were Messrs. Hambler and Blackburn, of Halifax, who took 180 tegs at 1s. 4d.; Mr. Gideon, of Bradford, had also several large lots assigned to him.

DONCASTER WOOL MARKET, (Saturday last.)—Very small supply of Wool here again to-day. It is evident the bulk of the clip has been already disposed of. Prices are unaltered, the diminished quantity giving firmness to value. The fair being on the 5th August next, there will be no market here next Saturday.

DORCHESTER WOOL FAIR.—About 2,500 tods were pitched, being an increase on last year's supply by 500 tods. Trade was dull in the early part of the morning, but as the day advanced the scales were in greater requisition, and ultimately all was sold, with the exception of about 150 tods, at the following prices:—Ewe wool, from 30s. to 32s.; mixed, 32s. to 33s. 6d.; teg (Down), 33s. 6d. to 35s. 6d.

LEEDS (ENGLISH AND FOREIGN) WOOL MARKET, July 23.—The relative prices of all kinds of combing wool in this market, as compared with the prices lately paid to the farmer, are much too low, and yet there does not seem a probability of an immediate advance, in the face of an immense supply of every description. There is a general disapproval of the recent speculations, and yet it not unfrequently happens that merchants and manufacturers yield against their judgment to an active competition. The market being well supplied, buyers do not show much eagerness to purchase. A good deal of colonial wool has been sold since the public sales commenced, partly in consequence of the advanced rates paid in London. In low wool there is a fair demand, and prices are unaltered.

THE LEWES WOOL FAIR.—This annual wool fair was held at the White Hart Hotel, on Tuesday last. There were nearly 100 farmers, wool buyers, and others present. John Ellman, Esq., presided. The following were amongst the sales effected at the dinner:—Mr. R. H. Ellman offered Mr. Cyrus Legg 797 ewe fleeces, 96 wether, 15 ram, 23 ram teg, and 430 ewe teg fleeces—total 1,361 fleeces at 44s. per tod—1s. 4$\frac{1}{2}$d. per lb.; the Sussex tod being 32lbs. Mr. Breach: And a very liberal offer (a laugh). The Chairman observed that it was only fair to state that Mr. Wallace, who had usually bought the wool of his son, not being able to be present, had requested him to offer it to Mr. Cyrus Legg. Mr. C. Legg offered 1s. 4d. per lb. Ultimately Mr. Ellman's wool was sold to Mr. T. Legg for his brother, at 43s. per tod. Mr. J. Saxby offered to Mr. T. Legg 700 ewes, 250 tegs, and a few other fleeces, at 1s. 4d.—42s. per tod offered and accepted. Mr. Harvey sold the wool of the Earl of Chichester to Mr. Legg, 660 ewe and 380 teg fleeces, at 43s. per tod. Mr. Hodson offered to Mr. Breach, for Mr. Powell, 1,383 fleeces, the usual portion of tegs, at 43s.—taken by Mr. Legg at the price. Mr. Knight (Pulborough) sold to Mr. Sprately 255 tegs and 240 wethers for 1s. 3d. per lb. Mr. Hodson sold Mr. Moore the Blatchington and Portslade wool, 1,600 fleeces, more than a quarter tegs, at 1s. 3d. per lb. Mr. Hackman sold to Mr. Adams 300 ewe and 120 teg fleeces at 42s. per tod. Mr. Kent sold to Mr. Adams the Southease and Iford wool—1,202 fleeces, including 840 ewes, 300 tegs, 36 fatting sheep, and 34 rams—for 42s. per tod. Mr. G. Blaker sold to Mr. Legg 903 ewe fleeces, 337 teg, and some others, at 43s. per tod. Mr. Guy sold to Mr. Adams his wool (quantities not stated) at 43s. per tod. Mr. P. Gorringe announced that he and his neighbour, Mr. Langridge, had sold their wool at 42s. per tod. Mr. Assender (of Fletching) sold to Mr. Hother 160 Down fleeces—about 50 of them ewes, and 20 half-bred Leicester—for 1s. 3d. per lb. Mr. Adams bought Mr. M. Filder's wool at 1s. 4d. per lb. Mr. John Gosden sold to Messrs. Rickman and Co. 700 ewe fleeces and 450 tegs at 43s. per tod.

LIVERPOOL WOOL MARKET, July 24.

SCOTCH.—The result of the fairs has in some degree fixed prices, and there is now a fair steady demand from the trade for all sorts, about the quotations.

		s.	d.		s.	d.
Laid Highland Wool per 24 lbs.		10	0	to	11	0
White Highland do.		12	0		13	0
Laid Crossed	do.. unwashed	12	0		13	0
Do.	do.. washed	13	0		15	0
Laid Cheviot	do.. unwashed	14	0		16	0
Do.	do.. washed	16	0		18	0
White Cheviot	do.. washed	24	0		28	0

FOREIGN.—The public sales of fine colonial wool are progressing favourably, which give a firmer tone to our markets, and there is a fair business doing by private contract.

FOREIGN AND COLONIAL WOOL MARKET.

Per lb.		s.	d.		s.	d.
German, Saxon, and Prussian.	1st and 2nd Elect	3	4	to	4	6
	Prima	2	4		3	0
	Secunda	2	0		2	4
	Tertia	1	8		1	10
COLONIAL: - SYDNEY—	Lambs	1	$5\frac{1}{2}$		2	1
	Scoured do.	1	$4\frac{1}{4}$		2	8
	Unwashed	0	$9\frac{1}{2}$		1	6
	Locks and Pieces	0	10		1	9
	Slipe and Skin	1	4		1	9
PORT PHILIP—	Lambs	1	4		2	1
	Scoured do.	1	$2\frac{1}{2}$		2	$3\frac{1}{2}$
	Unwashed	0	6		1	$1\frac{1}{2}$
	Locks and Pieces	1	1		1	$7\frac{1}{2}$
	Slipe and Skin	0	$8\frac{1}{2}$		1	$6\frac{1}{2}$
S. AUSTRALIAN—	Lambs	1	4		1	9
	Scoured do.	1	3		2	2
	Unwashed	0	9		0	11
	Locks and Pieces	0	7		1	2
V. D. LAND—	Lambs	1	$5\frac{1}{2}$		1	11
	Scoured do.	1	5		2	8
	Unwashed	1	$1\frac{1}{2}$		1	3

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Yours very truly

THE FARMER'S MAGAZINE.

SEPTEMBER, 1858.

PLATE I.

PORTRAIT OF J. HALL MAXWELL, ESQ.;

SECRETARY OF THE HIGHLAND AND AGRICULTURAL SOCIETY OF SCOTLAND.

PLATE II.

FREDERICK; A CELEBRATED SHORT-HORN BULL.

(For description see page 192.*)*

J. HALL MAXWELL, ESQ.;

SECRETARY OF THE HIGHLAND AND AGRICULTURAL SOCIETY OF SCOTLAND.

John Hall Maxwell, of Dargavel, comes of an old Scotch family, that, we gather from the Statistical History of Scotland, has been settled in the county of Renfrew for nearly six hundred years. Mr. Maxwell was himself born there in 1812, and having adopted the law as a profession, was called to the Scottish bar in 1835. The characteristic energy of the man never allowed him to occupy the ranks of the briefless. He enjoyed, indeed, at one time considerable practice, more particularly in such business from Scotland as came before Committees of the House of Commons. In the year 1845, however, Sir Charles Gordon, the then Secretary to the Highland Society, died; and Mr. Maxwell being a member of the Board of Direction, as well as with a predilection for agricultural pursuits, became a candidate for the appointment. He was elected to it in the January of the following year; and at once abandoning all further employment at the bar, he has since devoted himself entirely to the interests of the Society. It is not too much to say that he has done so with the most signal success. Mr. Maxwell gives a high reading to the office of Secretary, and his influence and example are something remarkable. The best patrons of the association at once put themselves under his direction, and it is amusing at times to see how dutifully a noble duke or a lofty chieftain receives his orders as to where he is to be at such an hour "to-morrow morning." They all, proverbially, work well together, and none more zealously than their Secretary himself. The effect of this has so far been most significant and encouraging. During the last ten or twelve years the Highland Society has progressed and prospered exceedingly. The funds have accumulated, its power has extended, and its constituency greatly increased. The association now numbers nearly three thousand five hundred members, having added much new blood to that original support it traces back to. Still the Highland Society has been in *active* operation for the best part of a century, while it has embraced within its legitimate sphere of action many features which the common run of agricultural associations have carefully kept clear of. So far, for instance, from interfering with any question before Parliament, it has promoted and been the chief agent in the adoption of many measures. One of the more recent and marked of its proceedings has been the recognition by the Society of the Collection of Agricultural Statistics—a question that has brought Mr. Hall

Maxwell prominently before the general public. Nothing, perhaps, could speak better to the appreciation in which the institution and its chief officer were held by the farmers of Scotland, than the readiness with which they answered to the call made upon them, and the good will with which they assisted in carrying out the experiment. The machinery, organized and worked by Mr. Maxwell, consisted of a volunteer committee of somewhere about twelve hundred practical men, representing every parish in Scotland. The result of their combined exertions was, that, almost from the first year, very complete returns continued to be made, and at an expense far below what was expected by the Government. The annual cost was originally estimated at six thousand pounds, and such a limit allowed Mr. Maxwell to deal with. For the four years he had the conduct of the inquiry, the information was obtained at something about three thousand five hundred a-year. We have already said this was of the highest and most satisfactory description. All the good men in Scotland were more or less directly engaged in rendering it perfect, and certainly no "innovation" was ever introduced or familiarized to a people under more encouraging auspices. It was just such a precedent and an example as a Minister would wish for. It is, however, an old story by this, how Routine stepped in, and insisted on Mr. Maxwell explaining why he spent three thousand a-year when it was calculated he would require twice that sum. But something more than an explanation was needed. Indeed, the vouchers and receipts regularly furnished were such as to amply satisfy the most scrupulous. In fact, as a man of honour, Mr. Maxwell himself would be content with nothing less. There was, however, an attempt at petty interference and minute dictation that, equally as a man respecting himself and those associated with him, the Secretary of the Highland Society could not submit to. He had no other course but to relinquish his charge. When, moreover, Mr. Maxwell withdrew from the collection, the whole of his staff resigned with him, and the Agricultural Statistics of Scotland were again all mystery and mere guess work. It is even still very noticeable that whenever the subject is now introduced, either in or out of Parliament, some of the first men connected with Scotland are certain to speak to the integrity and usefulness of Mr. Hall Maxwell.

Mr. Maxwell is a landed proprietor in, as well as a magistrate and deputy-lieutenant for, the county of Renfrew. In 1856 he was created a Civil Companion of the Bath; and in the same year he received a decoration—in lieu of the cross of the legion of honour—from the Emperor of the French, in consideration for his services in connexion with the Great International Agricultural Exhibition. These are high distinctions; but we question if Mr. Maxwell would not rank as his best reward the appreciation in which he is held by the members of the Highland Society.

OUR ORCHARD WINES.

BY CUTHBERT W. JOHNSON, ESQ., F.R.S.

The efforts made by man, in all ages and countries, to satisfy his love of wine, are not a little remarkable. We find him, in the warmer climates of the world, using for this purpose the fruit of the vine and rice; in colder climates, barley and the juice of apples and pears; in ruder countries, chewing and fermenting the leaves of certain plants; in Tartary, even the milk of the mare.

Wine, it is supposed, was first introduced into England, in very small quantities, from Rome. It was so scarce, even in the time of Edward I., as to be sold as a cordial by the apothecaries. As the English monks of the olden time, however, had vineyards attached to their monasteries, it has been conjectured that they succeeded in making themselves jolly with home-made wine; and this has been brought forward as some evidence of the decreasing warmth of our climate, since it is but rarely that the grape now ripens sufficiently in our country by out-door cultivation for the production of wine. But this is a very unsatisfactory way of examining the question: there is no other evidence of such a deterioration of our climate, and other testimony, indeed, is rather to the contrary. It has been lately contended, however, that the wine made by the English monks of the olden time was not from grapes, but from the juice of currants and other similar garden fruits, still used for that purpose in our country districts.

The great rural wines of England have long been its cider and its perry; and, as we are approaching the season when these will be making, in most parts of the West and South of England, it may be useful if we gather together a few facts on the manufacture of these largely-consumed wines. Both cider and perry have more alcohol in them than is commonly supposed. Professor Brande found in

Cider	9.87	per cent.
Perry	9.87	,,
Ale	8.88	,,
Brown stout	6.80	,,

The amount of these low wines made in England (cider and perry) is considerable. Cider was formerly subject to a duty of 10s. a barrel, but this impost ceased in 1830. In 1828 74,440 barrels paid duty, but there was much besides this quantity clandestinely made. It is probable that the amount produced has not much increased since the repeal of the duty. The uncertainty of the crop, even in the West of England, and on the most suitable soils, has chiefly operated against the extension of our cider orchards. It is noticeable also that the amount of even foreign wines consumed in England has been far from keeping place with the increase of our population and the wealth of the country. Our population, which in 1801 was about 10,000,000, is now more than 20,000,000. In 1801 the quantity of wine retained for home-consumption was 7,006,310 gallons, the next year 6,355,749 gallons. In 1825 the population had increased to about 15,000,000; the consumption of wine in that year was 8,653,995 gallons. The quantities imported during the last three years have been—

1855	8,946,766 gallons.
1856	9,481,880 ,,
1857	10,336,845 ,,

Cider is supposed to have been first made in this country in the twelfth century; and it is probable that the warm valleys of the West of England, on the old red sandstone formation, speedily became known as the districts best adapted for the production of cider and perry. It was soon found that certain juicy, harsh-flavoured varieties of the apple and pear were the best for the manufacture of either.

Old Worlidge, who wrote about two hundred years since, tells us indeed, in his "Mystery of Agriculture," that the cider orchards did not need very careful enclosures, since the cider apples of his days, as now, were "not at all tempting to the palate of the thief." And another old writer, quoted by Mr. Falkener, when speaking of a celebrated cider made in his time, from a mixture of an uneatable pear which then grew in the neighbourhood of Ross, called the "Jenny Winter," and the wild crab, says of it—"The pear is of no use except for making cider. If a thief steal it, he would incur a speedy vengeance, it being a furious purger; but being joined with well-chosen crabs, and reserved to due maturity, it becomes richer than a good French wine; but if drunk before the time, it stupefies the roof of the mouth, assaults the brain, and purges violently." It is evident that certain precautions, carefully observed by the best makers in the cider districts, are too apt to be neglected in those counties where cider is not largely made for sale; and hence the watery, poor cider too often produced in such places. The advantage of sweating the apples was known in the days of Worlidge; for he tells us (p. 139)—"About twenty or twenty-two bushels of good cider apples from the tree will make a hogshead of cider: after they have lain awhile in heaps to mellow, about twenty-five bushels will make a hogshead." Mr. F. Falkener (*Jour. Roy. Ag. Soc.*, vol. iv, p. 406) thinks that every 100 lbs. weight of apples yield about seven gallons of juice—that is 70 per cent. of their weight. The process of cider making, so quaintly described by old Worlidge, seems to have altered but little during the last two hundred years; his directions, indeed, very nearly agree with those of Mr. Knight, of Downton, given by Mr. Falkener as the practice of the best Herefordshire cider makers. It seems that as the fruit falls, it is collected in heaps of about eight or ten inches deep, or is conveyed to an open airy shed or apple-loft. In collecting the apples for making the best cider, the green fruit is thrown aside. In these heaps the apples should remain some weeks, until they become quite mellow. When conveyed to the mill, all the decayed fruit are picked out. The pulp is thoroughly broken down by the action of the mill, not only for the more perfect extraction of the juice afterwards by the press, but also for the free admission of the air to every part of it. With this view the grinding should not be a hurried, but rather a slow operation; for the more the pulp is exposed to the action of the air, the more saccharine it becomes, and the cider will be the less liable to violent fermentation in the cask. The pulp is allowed to remain exposed to the air four-and-twenty hours before it is conveyed to the press, in order to obtain as large an absorption of air as possible. In some instances the pulp is only slightly pressed, again spread to the air for some time, and afterwards returned to the expressed juice and pressed again. With such or similar preparations as the above, the increased richness of the juice, the diminished energy of the ferment, and the low temperature of the season, are all favourable to that moderate degree of fermentation which is requisite for making sweet cider. When the liquor is put into the casks, a considerable hullage or space between the bung and the surface of the liquor should be left, to allow a freer access of air; and the casks should be placed in an open and airy place, as in confined places or cellars the cider ferments too rapidly. If, notwithstanding this precaution, the fermentation become very active, the liquor should be immediately racked off, and the operation repeated if it again occur. The too great activity is indicated by a loud hissing noise, which is heard upon applying the ear to the bung-hole. The fermentation sometimes commences in a day or two, and at others not for many days, or even a fortnight or three weeks, according to the strength of the juice and the temperature of the season. When the fermentation has ceased, which may be known by the liquor becoming clear, it should be immediately racked into well-scalded and dried casks; these casks, as before, should not be quite filled, and their bung-holes merely covered. Great attention should be given to prevent any recurrence of active fermentation; upon the least appearance of which, racking must instantly be resorted to, until the cider becomes permanently tranquil. The dregs of the fermenting casks should be filtered through a conical flannel-bag, spread at the mouth and suspended by a hoop. In the operation of racking, the finer the stream the more effectual will it be in checking fermentation; and this effect will be increased by pouring the liquor through a vessel perforated with numerous holes, or affixing the rose of a watering-pot to the vent or tap, thus producing a more complete separation and exposure to the air, and consequent precipitation of the ferment. Some cider makers cause the cider to run down a board into the receiving vessel, so as to expose it as much as possible to the action of the air. The coolness of the situation of the cider during its fermentation is of great importance; for at a temperature much above 50 deg. Fahrenheit, the acetous change commences, and proceeds simultaneously with the vinous: but below that degree, neither before the cider is tunned, nor after in the open cask, is any acid produced. The object of all this particular management of the cellar is, after obtaining a certain degree of fermentation necessary to produce a sufficient quantity of spirit, to subdue the action of the exciter, the ferment, and thereby to induce that slow and tranquil change which gradually converts the remaining sugar into spirit, but which, in a well-closed cask and a cool cellar, it takes years to accomplish. In the following April the cider is again racked, to get rid of the lees, and the casks are then closely bunged down, and the cider is in a fit state to stow away in the proper keeping-place, or to send out. The racking of cider in the spring should be performed when the air is dry and cool. When perfectly fine the cider is fit for bottling; but Mr. Knight recommends keeping it two years before it is bottled. Cider, carefully managed, will retain its sweetness three or four years in the cask, and many years when bottled. The bottles should be laid upon their sides, in order that the corks may swell and prevent the escape of the gas. In bottle, the gas, which at first is yet slowly formed, soon occasions such a pressure as to put a stop to any further change, which can proceed only so long as the carbonic acid gas—one of the products of that change—is allowed to escape. In tolerably matured cider, the needful pressure for this effect is too feeble to endanger the bursting of the bottles, but is at the same time sufficient to give a great briskness to the cider when the cork is drawn.

It is not the coldness of our winters that prevents us becoming a greater wine-growing country. The low mean temperature of our summers is the great obstacle. The *annual* mean temperature of the valley of the Rhine is considerably lower than with us; but then the mean temperature of its summers is much higher. The vine therefore annually ripens its fruit in Germany, whilst it scarcely ever does so with us. In England, as in France and Germany and Italy, it is the late frosts of spring which the owners of orchards and vineyards dread. They find on the continent that the vineyards which escape the best are those which slope towards the north; since the sap of these is set in motion much later than those which slope towards the sunny south, and when the heat does set their sap in motion on the northern declivities the season has become settled. The very same remark has been of late years made by the Devonshire farmer. The cider orchards, which were formerly confined to the bottom of their fine rich and well-sheltered valleys, are now far more frequently planted well up the hill sides, and in aspects where the trees escape the early sunshine. The apple blossom in such orchards they find often escapes the effects of frosts, which seriously injure that in low-lying orchards. They tell you that it is the cold wet hoar frosts, and the greater dampness of the air in the valleys, which are so much more injurious to the blossoms than that of the hill sides. This year, I learn, will afford very decided instances, in South Devon, of the correctness of these observations. We are sometimes too apt to believe that these late frosts are more injurious to us than to the cultivators of the South of Europe; but this is an error; for, as Lord Lovelace some time since remarked, even within the " cereal zone—that which enjoys greater stability of seasons than those of the vine and olive lands—there are greater vicissitudes of heat and moisture than in England. Take, for instance, the occurrence of hoar frosts, so destructive in their effects on our early garden produce in the spring. The mean number of these at Orange, in the South of France, is 17.7; while at Rome, where they have been known to occur in June, it is 63.8. The buds of vines and mulberries are destroyed by them as frequently as our peach blossoms in England. In Italy, a district around Otranto is ironically called the " Land of Flowers," since the recurrence of these visitations so often prevents their being succeeded by fruit.

There is little reason, then, why our cider orchards should not be extended, and a good wholesome beverage made from this fruit for our labourers. In all the great cider counties the working-men prefer the cider to beer; and they select in preference the rough, bitter, acid cider. Respecting the sweet cider, so much preferred in London, the cider consumed in the metropolis chiefly comes from the Channel Islands, or from Devonshire. The expense of the land-carriage considerably retards, in London, the consumption of the perry and cider of Worcestershire and Herefordshire. The quantity of this rough cider allowed to the farm-labourer varies from three or four quarts in ordinary seasons, to ten or twelve quarts during harvest. The effect of consuming so much of this acid drink is not seemingly injurious. The cider counties are said to have been remarkably exempt from cholera during its visitations to this country; and in stoutness and general healthiness of appearance, the peasantry of the lovely counties of Devon, Hereford, and Worcester will well bear a comparison with those of the beer-consuming districts of merry England.

THICK OR THIN SOWING?

Sir,—Fifteen years of experience are worth something, or at all events ought to be of some value. Does the quantity of seed sown regulate the quantity of corn to be produced? Most decidedly not. As a general rule, the larger quantity of seed sown produces the smallest result, because it implies a poor or ill-cultivated soil, having no power to compel the plant to tiller. It would be absurd to lay down an arbitrary rule of quantity for all sorts and climates; but we may take these general rules as a safe guide :

That the quantity of seed must be diminished in proportion as the natural or artificial fertility of the soil is increased.

That in such soils the sowing of too much seed produces a rank and close vegetation, prematurely developed, laid early, apt to be mildewed, and ruinously unproductive in quality and quantity.

The extreme illustration of this is afforded by the bunches grown from masses of seed dropped from the drill, or accumulated by mice.

That time is gained or early harvesting is promoted by two causes—a highly manured, drained, and fertile soil, or by a large quantity of seed. In the latter case prematurity is attained at a sacrifice of quantity. If I were asked whether I would sow thick to produce an early harvest, or whether I would sow thin and earlier, to produce the same result, I would most decidedly prefer the latter mode.

Experience has taught many farmers that, if they *will* continue to sow the same quantity of seed as they used to do when they farmed less highly, they must sow later to avoid a prematurely laid crop.

If every farmer had tried (as I have done) for a series of years, on a moderate space, the comparative results of given quantities sown at stated periods, each man would have arrived at a suitable quantity adapted to his own climate, soil, and circumstance.

My frequent intercourse with farmers from every county and every clime enables me to appreciate the enormous errors and discrepancies in regard to quantity of seed sown, and also convinces me of the want of uniform action and profitable knowledge amongst British agriculturists on this subject.

Several of my wheat fields this year are estimated at six to seven quarters per acre. I need hardly say, that the straw is like reeds, and abundant in quantity. This is from a bushel of seed drilled per acre. Now, when some of my Welsh or foreign friends see this, they naturally suppose I have sown as much seed as they do, and wonder that my crop stands so stiff under such heavy ears. They seem quite amazed that one bushel of wheat or two bushels of oats should produce such results as six quarters of wheat and eleven quarters of oats per English acre.

I ought to be equally surprised when I hear of their sowing three bushels of wheat, and four to seven bushels of oats, to produce miserable results of two-and-a-half to three quarters of wheat and five or six quarters of oats.

I have said that high manuring renders a small quantity of seed absolutely necessary. I ought to add, that every weed should be extirpated, and the whole of the soil placed at the sole use of the growing crop. But how stands the fact on the *majority* of farms in this kingdom? A fierce competition goes on between the thickly-sown grain crop and a powerful natural crop of hungry weeds, the latter too often consuming that which ought to have been the nutriment of the former, thereby reducing it in quantity and quality, to the serious injury of the farmer. This is no highly-coloured picture. If I travel by the flying train in the month of May, I can, even so, perceive this blot upon English farming, in every direction; a painful remainder of agricultural neglect and miscalculation.

How few know the use of Garrett's horse hoe! For fifteen years my wheat and other crops have benefited by this. The farm labourers know well the value of clean hoeing, and can predict the failure or success of the crop accordingly.

Why a farmer should deem it necessary to hoe his turnips, and not his corn, is to me a mystery. The same principle applies equally to both. The amount abstracted annually from the farmers' pockets by the growth of weeds is something enormous in the aggregate.

The effect of extra manuring on the proportion of seed was strikingly exemplified in a distant wheat-field of mine, sloping towards my bedroom. On one portion of that field, forming a square and then an oblong, my sheep had been folded twelve hours longer than on the rest of the field. In every stage of the growth of the corn, *that* extra folding was shown as distinctly as if coloured on a map. The crop was thicker and more early laid, and more frothy at harvest. Strictly speaking, three pecks, instead of one bushel, of seed would have been the proper quantity for that portion. I am still of opinion that land can never be too rich for wheat, provided the quantity sown is adapted to the circumstances of the field.

I have formerly stated that on my land I have found that two bushels of seed-wheat, as compared with one bushel, reduce the yield by a sum equal to the rent of the land.

Mr. Hewitt Davis is entitled to great credit for what he did practically in proving the advantages of thin sowing, combined with deep and clean cultivation.

In dealing with such an enormous area as the cereal crop of the United Kingdom, the waste of seed forms an aggregate item of national importance.

I never found any farmer who complained of my not having straw enough: on the contrary, thick-sowers have admitted that the quantity was much larger than their own.

On light, chalky soil, or limestone rock, especially at high elevations, as in Gloucestershire, I have known thick and early sowing practised, because, by covering the ground early, it protected the *roots* from frost. We know quite well that, whilst the leaf of wheat suffers little from frost, the plant when root-frozen is destroyed. Under such circumstances, it might be advantageous to thin-out the wheat by hoeing in the spring.

Trusting that these remarks may lead to a due consideration of the question, I am, yours truly,

J. J. Mechi.

Tiptree Hall, Kelvedon, Essex, Aug. 12.

THE LABOURER'S OPPOSITION TO THE USE OF MACHINERY.

Mob law will rarely do to reflect on. An argument enforced by the breaking of heads and the smashing of windows does not evince much reasoning power, however great it may be in physical force. Beyond this, rioters do not often know what they really want, and seldom press a point which does not eventually tell against themselves. A movement that defies order, destroys capital, and interferes with the industry of a country, cannot be attended with any actual good. It is a hard thing to say, but, as a rule, we may regard such outbreaks as altogether mischievous and unjust. A few designing ringleaders, who can profit only by confusion and violence, carry the others with them; and once thus excited, nothing is so senseless or so suicidal as the conduct of a crowd. Friend or foe fly equally before their indiscriminate fury. If in want of work, they pull down a manufactory! Or, crying for bread, set fire to a bakehouse! Well might the Duke feel they were not to be trusted, and regard with equal indifference their hurrahs and their hootings. What a fine estimate of mob rule was that significant wave of the hand towards his iron blinds, when they cheered him home to Apsley House!

There was a day, an almost forgotten one now, when agriculture had its own peculiar class of these offenders. When men in want of work considered the best thing they could do would be to ruin their employers, and that the first act of justice to their starving families was to have a stack-yard in flames. At such a time the farmer who strove to produce the most food was regarded proportionately as their greatest enemy; and they broke-up his thrashing machines and condemned his hay-makers, simply in self-defence. The rising generation of either master or man would now scarcely credit this. And yet it is not so many years ago that such lawless sway was exercised—when the good Mr. Hornsby, of Grantham, had to "swear in" all his artizans and mechanics against the threatened attack of the agricultural labourer, who would have nothing but flail thrashing, broad-cast sowing, and hand hay-making. With the customary short-sightedness of any one in a crowd, he could not see that machinery might aid him quite as much as his master; and so he threatened and stormed on—to an inevitable conclusion, which brought himself to the gaol, and his family to the workhouse.

If anything could tend, or has tended to elevate the labourer beyond the rank of a mere drudge, it has been the extended use of machinery. If any one thing has developed his intellectual faculties, raised the nature of his employment, and increased his own self-respect and appreciation, it has been this further use of mechanical power. Nay, it has added to his comforts; and, if cheap bread be his great want, has as certainly become the means to such an end. Should we grow the crops we now do, without this agency? Could we bring them on, or harvest them in the condition we do, without that machinery which is at present regarded as the very necessity of good farming? The farm servant himself, with his increasing intelligence and better use for his abilities, has come to fully acknowledge the advantage of such appliances; and the man who years since would have headed a riot to destroy a horse-thrashing-machine, would most likely now fly into open revolt only when you put a flail into his hand, and a barn-floor for him to hammer on.

At harvest time more particularly, it seems like flying in the face of Providence not to secure our corn as quickly as possible. With wheat got up in better condition, it is a very logical sequence that the poor will have better bread. Accordingly the reaper is coming more and more into use: its action has been progressively improved, and the workmen as gradually accustomed to its management. And so when, a few seasons back, as Mr. Mechi writes, he was inclined to return his Hussey, "the men were too good judges to part with such a friend, although for the first year or two their want of practice caused them a little trouble; but their own self-interest soon taught them to take care and keep it in good working order." Strange as it may sound, at the very time this letter appeared — a set of lawless rioters had possession of a town of some importance, with the avowed object of preventing the use of reaping-machines for the ingathering of the harvest. They paraded the streets, they visited the neighbouring homesteads, they ill-treated women, they beat old men, and robbed farmers of their watches—all, no doubt, to show how unfair it was to cut corn with a reaper or a scythe instead of a sickle. It is a somewhat melancholy commentary on the advance agriculture has lately been making there to add, as we must, that this occurred in Ireland. It was only at Waterford, last year, that we heard from Messrs. Garrett, and the active Mr. Norton, of the firm of Richmond and Chandler, how the Irish were coming to appreciate good implements. And it is within but a stage or station or two of Waterford that this outrage has been committed.

The *Kilkenny Journal*, dating from the scene, thus describes the disturbance:—"On Monday morning, at daybreak, the streets rang with the rioters, who held a sort of council of war, in which it was decided that all the machinery in the county should be forthwith destroyed, as the only chance of employment for the labourer. After parading the streets for some time, they proceeded at 6 o'clock to Oldtown, about two miles from this city, to the residence of a farmer named Walsh, and commenced breaking his reaping machine, which they soon smashed into fragments. Walsh offered no resistance, as he considered it useless, but looked on quietly, and the mob proceeded on their work of destruction without offering him any personal violence. At 9 o'clock they reached Pigeon-park (near Danesfort), the residence of Mr. Howson, a Scotchman, and prepared to attack his machine also. Mr. Howson and his family, on the other hand, prepared to defend it; but at the very outset his gun was knocked out of his hand by a blow of a large stone, with which he was struck on the arm. One of his sons seized the gun and ran off with it, but while in the act of doing so he was closely pursued, when he turned round and fired, but without effect, upon his pursuers. He was instantly seized, and the gun taken from him and broken; but he suffered no personal violence at the hands of the rioters. We regret to say that his father was not so fortunate, for, while striving to defend the machine, he was knocked down, and received several severe injuries in the head and jaw; but though severely hurt, we are happy to say his life is not in danger. While Mr. Howson was lying on the ground, his daughter, with the courage of a heroine, seized a pitchfork and held it above him, threatening instant death to whomsoever should touch a hair of his head; but she also, after some vain resistance, was speedily disarmed, and received some slight injuries in the struggle. The machine was then broken to pieces, and, more disgraceful still, Mr. Howson's gold watch was carried off by the rioters."

Even here the leven is easily recognisable. The farm labourers of the district were led on by disbanded militiamen from the adjoining counties. It was the stranger, in fact, who took the way to Oldtown and Pigeon Park. The disaffected of his own neighbourhood came on here, equally prepared for uproar and outbreak. Without these he had neither position nor influence; as floating on the waves of such a storm he had a chance of appropriating something from the wreck. It is only to be regretted that the people were so easily incited, and more so still that the authorities suffered the riot to reach the height it did. What good can come of breaking Mr. Walsh's reaper, or stealing Mr. Howson's watch?

But we will make this no one-sided question. In England, too, there has been another demonstration against the reaping machine. It emanates amongst us not with the lowest, but rather with the highest of the three classes. During this present harvest a farmer in the Midland Counties received an intimation, through the agent, that his landlord would prefer a reaping machine *not* being used on the estate; the reason being, that it cut the stubble too close! The tenant responded with the spirit of an Englishman, that if he could not reap his corn as he chose, he had better go. And the notice was explained and withdrawn. Come from what quarter it will, any such intimidation had better at once be "withdrawn." We say it advisedly, that the landlord or labourer who seeks to use such an influence over the agriculturists of this country will "come to grief." A mob is no longer a tyrant, as assuredly a tenant-farmer is no further a serf.

YORKSHIRE AGRICULTURAL SOCIETY.

MEETING AT NORTHALLERTON.

The twenty-first anniversary of this show, which has gradually become another peaceful battle-ground, on which the Royal July decisions may be overthrown or confirmed, was held at Northallerton, during the first week in August. The prizes amounted to £902, of which £42 was contributed by the locality, and took a wide range over stock, horses, poultry, long and short wool, green flax, grain, and labourers' cottages; for the latter of which seventy-five designs were sent in. It was stipulated by the giver of these £20 and £5 prizes, that the cost of the single cottage should not be more than £110, and of the double not more than £200; such cost not to include building ground and garden, and each cottage not to contain less than three bedrooms.

In point of numbers, the implements and poultry fell considerably below last year; as, indeed, did the stock in a slight degree. On the Thursday, in spite of its being the very height of the early harvest every where, the tykes flowed in amain from eight o'clock, and took their station all round the acre-and-a-half ring, into which the horse classes were led, one after another, for decision, with as much zest as if they were struggling for early places by the side of the rails on a Doncaster St. Leger morning. Still the other candidates were not neglected, though the sheep had a somewhat scanty audience. "Sir Edmund Lyons" did not come, and Sir Charles Tempest's bull, "Emperor Napoleon," seemed quite the favourite with the million, though they fully recognised the splendid touch of the winner. Colonel Towneley's "Victoria" was entered to meet "Nectarine Blossom," but was lame and unable to come. We deeply regret to mention that a tenant of Lord Feversham's, while looking at this prize bull, received a blow from its horn near his heart, and when he was on the ground it knelt on him and injured him so severely, that he died in about half an hour. The bull was immediately blindfolded, and a small barrier was built round him, to keep spectators off; but such was the attraction of the horse-ring, that until the close of the day the sad event was not known to above fifty people in the yard.

On Tuesday the business of the week commenced with the trials of field implements, including steam-ploughs, reaping-machines, scarifiers, grubbers, horse-hoes, etc. On proceeding to the land of Mr. Oliver, about a mile from the show-yard, we found in a piece of clover-ley Mr. Fowler's and Mr. Eddington's steam ploughs; but these gentlemen finding the land harder than they had expected, begged an hour's grace of the judges, in order to adapt their implements to the work; so that the horse-hoes were set in operation in an adjoining field of turnips on the ridge—not a very good plant, but the land in a nice powdery condition, that any implement could work in. Barker, of Dunnington, had a parallel expanding horse-hoe, very simply and well constructed, which worked exceedingly well, and had a small Norwegian harrow following, to turn out the cut weeds. A five-tined grubber or "scuffler," for working between the rows of green crops, was also shown by the same maker. Bentall's grubber or horse-hoe, or moulding plough (whichever shape you choose to work it in), is an admirably light, yet sufficiently strong and very efficient implement, and is not only useful for so many purposes, but steady in working, not hard in the draught, and cheap. Stead, of Barnsley, showed a horse-hoe and a grubber for row culture; also Belt, of West Sutton, Malton, implements for the same purposes, with lever-movement for raising or lowering; Busby his well known horse-hoe; Comins a horse-hoe and grubber; Hunter, of Ulceby, Hull, a horse-hoe and grubber for working between rows of growing crops; and Smith, of Kettering, his horse-hoe with swing motion, for guiding the cutters, and rocking-bar behind the shafts, giving great freedom and facility to the implement on uneven ground. In addition to these, we may mention Busby's "turnip-snagger," that is a tool for tailing turnips ready for taking up; this is well known as being the invention of Mr. Lister, of Dunsa Bank. Also Huckvale's noted revolving turnip thinner, exhibited by the North of England Implement Company, the successors of Mr. Palmer, of Stockton-on-Tees.

After a false start or two with the steam-ploughs, the judges sometimes waiting for the machines to start, and the exhibitors sometimes waiting for the judges, the "authorities" unexpectedly made their appearance in the fields of wheat devoted to the trial of reapers, of which no less than eleven were waiting an opportunity to display their capabilities. The upper piece of nice ripe wheat—not very heavy, but considerably laid in one direction, and "raffled" in many places, with a good plant of clover underneath, but clean from tall green weeds—was selected as the scene of operations, and Mr. Crosskill volunteered to "open the ball" with a country dance that soon looked very much like "The Triumph." Proceeding along one headland, which had been previously cut by scythe, the machine commenced work on one side of the field, going in the same direction that the crop was principally laid, the straw being therefore very difficult to pick up and lay upon the delivery-platform with the reel. The cutting was imperfectly done, as no reaper is intended to work this way; but on going to and fro across the end of the field, over ridge and furrow, with the stuff lying across the machine, as well as when going down the field meeting the crop, the work was splendidly done, and the corn was not only delivered on either side in a regular and even swathe, very ready for "gathering," but charged into the standing (or rather slanting crop), opening a passage for itself, the horses following. The draught appeared to be heavy for the horses; indeed, this is the failing point in the machine; and while the gearing needs to be altered so as to drive with a less expenditure of power, some other improvements might be made, as in altering the "toes" or dividers at each side, to prevent an undue share of corn being cut by the outside or end knives.

The crowd of spectators became so inconvenient that the judges were compelled to break off their duties until the field was cleared, and after a time the trials recommenced. Dray's Champion reaper, exhibited by the North of England Implement Company, was tried; but though taking a small breadth, and cutting tolerably well, the back delivery in bunches, by means of the tipping-platform, was not neatly effected. The labour of the rakeman is severe. A new machine, by Wardell, of Aldborough, Darlington, attracted considerable notice, from a novelty in its construction. Somewhat in form like Dray's Hussey, with a curved platform for delivery behind the horses, it has an endless web stretched upon rollers arranged in a radial position, the rotation of which causes every part of the web to travel in a curved direction. The corn conveyed by this web to the side of the platform is caught by a couple of large, though light rollers, and drawn between them like the straw and hay in a chaff-cutter, or the clothes in a patent roller mangle. The delivery thus singularly obtained does not deposit the stuff in a regular swathe; but we think something may probably be made of the idea, though it looks so much like crushing or thrashing out the grain. A soaking shower of rain came down at this period of the proceedings, dispersing the lookers-on to all places of available shelter; but after a while, wet as the corn was, and unfit for cutting, with the ground also become very wet and sticky, it was considered best to go on with the experiments in order that purchasers from a distance might have an opportunity of seeing the various machines, and that the prizes might be awarded as early during the show as possible. Accordingly, the machines were set to cut down one side and along one end of the field, those which clogged with the adhering wet earth being permitted time to be cleared, and again proceeded with. Burgess and Key's machine, exhibited by Parrington, of Normanby, cut beautifully; the screw platform delivered well, but with a swathe less regularly deposited than Crosskill's, and the conical dividing roller gathered in the corn at one side ready for cutting in a very neat and effective manner. The work for the horses was evidently much lighter than that of Crosskill's machine. Comins, of South Molton, Devon, then tried his reaper, constructed much in the form of Dray's, but with knives having a shearing or scissor-like action, the fingers being angular and sharp edged, with the angular cutters vibrating above them. Busby, of Newton-le-Willows, near Bedale, and Magnell of Northallerton, next tried their Dray's Hussey-machines, but without results that could place them in competition with the side-delivery machines already worked. A machine by Wray, of Bedale, with knives on an endless chain, passing continually in one direction across the machine, failed to produce good work for many yards together. Finally, a machine made by Cuthbert, of Bedale, performed in a manner far surpassing any machine without self-delivery which had been tried in this rather summary and, owing to the weather, most unsatisfactory fashion.

This machine, though a novelty to many persons at this meeting, has been very extensively used, and the makers are at this moment altering many of the Hussey machines to their improved form. The driving-wheel is of larger diameter—avoiding the liability to sledge, and consequently choke when running into a furrow; the cutter-bar is hung by a sling, which relieves it of a great amount of the friction previously found to waste so much power; the speed of the knives is much less than that of Dray's; and the driver can alter the dip of the cutters, by a screw attached to the shafts, which are used instead of the pole, and give greater steadiness of draught and steerage. One horse was used with the back-delivery, and two horses walked along more briskly with the machine, having the side-delivery platform attached. In delivering sideways in the rear of the horses, two men are employed: one using a rake, as with Dray's machine, pushing the corn back upon the platform in portions; and the other, stationed upon the rear of the machine, raking off these portions directly sideways, and leaving them in very neatly laid bunches upon the ground, ready for tying. The cutting is so excellent, the delivery so good, the draught so light, the price so moderate (£20) that a universal opinion was expressed in favour of this great improvement upon Dray's machine. It was clear, however, that the reapers which delivered the corn independently of manual labour, must be the real competitors for the prize; and there being advantages in each not possessed by the other, and defects peculiar to each respectively, it was difficult to predict how the decision of the judges would fall. As will be seen from the prize list, they wisely gave both implements their approval by dividing the prize equally. And a special silver medal was awarded to Cuthbert for his "new and improved principle of construction."

Now for a word or two on the steam-ploughs. Mr. Fowler's is just the same machine that gained the £500 prize at Chester; and before this had been decided by the Royal Agricultural Society's Council in London, the judges at Northallerton had determined upon awarding him the Yorkshire Society's prize of £50. The land worked on was a very strong clover-ley, so tough that a furrow of ten inches wide by six inches deep was considered to be three-horse ploughing. The work was turned over exceedingly well, at the rate (stoppage included) of seven acres in a day of ten hours, at an expense (allowing 20 per cent. per annum for wear and tear) of about eight shillings per acre. The saving of some four shillings per acre, as compared with the cost by horse-labour, at once entitles Mr. Fowler's machine to be considered as "an economical substitute" for the common plough. The hands engaged in working the appararus are the engine-driver, two men with the plough, two boys regulating the rope-carriers, &c., and the water-cart man and horse. The price, with a double-cylinder 10-horse portable engine, is £650; with a 7-horse ordinary portable engine, £450. The windlass is connected with or taken apart from the engine in a quarter of an hour, and four horses with two drivers can remove the whole machinery into another field in about a quarter of a day. The Cotgreave trenching-plough, going two furrows deep, is a most astonishing implement; and with this the ground was broken up 12 to 14 inches deep, and turned over with the subsoil exposed in a manner fully equal to that of spade labour; and for some 14s. or 16s. an acre the steam machinery did work fully equal in value to that which men with spades and picks would require at least £4 an acre to effect.

Mr. Eddington's apparatus consists of two powerful windlasses, upon the top of which are placed two ordinary portable 8-horse engines, and these being stationed one on each headland, haul the implement up and down the field by wire rope and winding-barrels. The implements worked were large scarifiers constructed by Coleman, and Fowler's ploughs. The hands engaged are two engine drivers, two men at the windlasses, two men with the implement, and two men to attend to the shifting forward of the engines, the water, &c. It is intended to work two implements at once, passing each other in opposite directions, with a space of twelve or twenty yards between them; the engines moving forward along the headland, when this portion of ground has been completed. The work did not proceed very satisfactorily, and though the engines can travel of their own accord along the road, and are not difficult to run up to or down from the top of the windlasses by means of inclines, the arrangement was considered far too costly for the farmer's use at present.

After the trial of reapers and inspection of the steam-ploughs, a number of scarifiers, parers, grubbers, &c., were tried, when Bentall's and Coleman's, as usual, did beautiful work. Woofe's paring plough attracted general admiration for the easy and perfect manner in which it sliced off the sward an inch deep, and turned it over, without missing or clogging; and a new cultivator, or "twitch eradicator," of Mr. Clay, of Wakefield, was approved for its novel method of lifting out the teeth backward instead of forward, so that they would rise out of the ground of their own accord, and clear themselves of rubbish.

In the show-yard was a very large and splendid collection of agricultural implements, shown by ninety exhibiters, including Barker of Dunnington, Bentall, Brown and May, Busby, Clayton, Shuttleworth, and Co., Coleman, Crosskill, Davy Brothers, Foster, Goucher, Harland, Hornsby and Sons, Howard of Bedford, Humphries, Magnell of Northallerton, the North of England Implement Company, Patterson, Reeves, Richmond and Chandler, Robey and Co., Ruston, Proctor and Co., Sawney, Smith and Ashby, and Tuxford and Sons. There were no trials of steam-engines, but our prize list shows that the judges took the wise course of awarding commendations as well as the single prize offered by the society, for engines in which "simplicity of construction, durability, and consequent safety in working, are considered, equally with the economy of consumption of coal." The premium here again confirmed the Chester award, going, as it did, to the Tuxfords, of Boston. Perhaps the Judges might very well have been a little more liberal in the appreciation of implements and machines distributed through the various stands.

The show of stock was satisfactory in every respect, and in some departments larger and better than the society ever had before. The entries of cattle were 142 against 117 last year; sheep, 102, less than last year; pigs, 101, the same as last year; horses, 210, or less than last year; poultry, considerably less than before.

The shorthorns are certainly a wonderful show, from the high standard of excellence observable in every class and almost in every animal. The "bulls of any age" form a remarkably fine class—with Lord Feversham's "5th Duke of Oxford," of magnificent quality, again conqueror here, as he was at Chester; Mr. Wetherell's bull, that took the second prize at the Lincolnshire meeting at Grantham; Mr. Barroby's "Marc Antony," second at Chester, were both but "commended" here, being beaten by Mr. Wetherell's "Statesman," the first prize bull at Grantham. The yearling bulls are, some of them, amazingly good and handsome; but some few ordinary animals lower the character of the class as a whole. Mr. Fawkes's second prize bull is of splendid quality, with a wide chest, but not quite of the size and capacity, of Mr. Marjoribank's prize "Great Mogul." The latter, who had just five months the advantage of him in point of age, has thus won two firsts and two seconds at this and the Royal Show. His conqueror at this show last year, "Lord of the Valley," was not entered, and is let to Mr. Carr, of Stack House, near Settle. Mr. Dudding's Grantham prize yearling, Mr. Ambler's, and Viscount Strathallan's are particularly meritorious animals. The bull calves are uncommonly fine young stock, but with a few of inferior character. Colonel Towneley's "Royal Butterfly" is beautiful in all points; Lord Londesborough's second prize roan calf good; and Lord Feversham's deserving of his commendation. As usual, the cows in general are wonderfully good in form, handsome, but rather too much got up in the Baker-street style. In the "any age" class, Mr. Booth's "Nectarine Blossom," which took the prize at Chester, is a perfect picture; Mr. Wetherell's "Moss Rose" is a splendid animal, and Mr. Douglas's not far behind in merit. The two-year-old heifers are a remarkable class—Mr. Douglas, Mr. Booth, Mr. Barber, Mr. Wetherell, and Col. Towneley's animals possessing surprising excellence. Most of the yearling heifers are extraordinarily beautiful, particularly Mr. Douglas's "Lady of Athelstane," Colonel Towneley's "Pearl," Mr. Grundy's, and Captain Gunter's; and above all, Mr. Booth's handsome "Queen of the Isles," which has obtained the special prize given by Mr. H. B. Peirse, for "the best animal in any of the cattle classes" Captain Gunter was second to her with "Moss Rose," and he also received one out of the five commendations with "Fair Maid of Wetherby," rare encouragement for so young and sprited a breeder. The heifer-calves are "generally commended," and are not only a meritorious but very large class. In the "fat ox" and "fat cow" classes, we did not see anything very astonishing; but Mr. Smith's and Mr. Gell's oxen are certainly good beasts; and Mr. Fletcher's prize cow is a long way a-head of any other in her class. There were several capital dairy cows. The extra stock comprised a few magnificent cows, and several not very grand cattle. Mr. Wetherell's cow and Mr. Brooke's are good, Mr. Booth's very handsome and with a great quantity of flesh, and Colonel Towneley's "Roan Duchess" very beautiful, with a good breast-end, extraordinarily broad hips, and good touch.

The decision of the Extra Stock-cattle Prize, in favour of Mr. Booth's Bride Elect, made an equal score between the Athelstaneford and Warlaby herds; and the special prize just turned the scale for Yorkshire.

The Leicester or long-wool sheep are a particularly good show this year. The "shearling ram" class is very good, comprising some grand animals. Mr. Abraham, Mr. Wiley, Mr. Sonley, and Mr. Hannam are great in this class, besides Mr. Borton, whose beautiful sheep carry off both prizes. The "any age" rams are an exceedingly good class; one of Mr. Abraham's has a grand breast and plaits; Mr. Simpson's very good; Mr. Borton's of splendid quality; Mr. Angus's good, and Mr. Sonley's pretty, but small. Mr. Taylor's and Mr. Crowe's prize ewes are extraordinary beauties; Mr. Simpson's have especially grand rumps; but the rest of this rather small class are far from possessing the excellence looked for in show sheep. Some of the "shearling wethers" are still worse; one lot being very poor and leggy; but Mr. Jordan's, Mr. Marshall's, and Mr. Boast's are good. In several pens the "shearling gimmers" were badly formed, and in poor condition; Mr. Abraham's, Mr. Wiley's, Mr. Simpson's, and some others were very pretty, beautifully symmetrical, and with first-class quality of meat. Mr. Handy's and Mr. Eddison's Cotswolds are good; but this class had very few entries. Among the extra stock sheep, Mr. Hall's three-shear ewe is a very fine animal, and Mr. Ferrand's cross-bred horned and mountain sheep formed a noticeable feature.

There was a very good show of pigs. The "large breed" boars were few in number, but were certainly of extraordinary dimensions. Mr. Barker's "Young Prince," which failed to get a prize at Chester, has taken the first prize; he weighs, it is supposed, 75 stones imperial, but his quality is not so good as that of Mr. Harrison's Chester boar; his age is five years. No second prize was awarded in this class, the animals not being considered to be purely of large breed. The large-breed sows very properly received a "general commendation." Mr. Wainman's has a most enormous frame, and is well formed; Mr. Barker's "Lady Havelock" is no less extraordinary. Several of the small-breed boars are of most beautiful proportion and quality; and the small-breed sows are almost all of them very superior animals. Mr. Mangles took the first prize in this class, which was "generally commended;" and he showed another sow nearly as good. Colonel Towneley's is very deeply formed, and fat. The sows "of any breed" are a most extraordinary class; Mr. Wilkinson's "Queen Anne," and Mr. Barroby's sow being splendid in symmetry and feeding quality. The class of "store-pigs" is particularly good, Mr. Wiley's being a marvellously fine lot. The large-breed boars, "under 12 months old," were an unlevel show, though some of them very commendable; and several animals in this class were pronounced doubtful as to purity of breed. The large-breed sows, "under 12 months old," were much better. The small-breed boars and sows, under 12 months old, were both "generally commended," and were in most cases wonderfully forward and developed.

The poultry show was more than usually excellent for the time of year; but it is remarkable how the taste for Cochins is on the wane.

The Horse entries were 209, and upwards of 170 put in an appearance. Instead of being exhibited in stalls, as at the Royal Show, the four Stallion Classes have each a portion of ground railed off, and show themselves there till they are finally called before the judges in the ring. Neither of Mr. Ridley's horses, Barnton or Hospitality, came, but the other eleven all stood to their colours, and there was no small amount of betting as to whether the Chester decision between Spencer and Canute would be reversed. The youthful General Williams was not a small favourite; and so was Dr. Sangrado; and taking the class as a whole, it was far before Chester. Sir Harry Martin resembled his sire Lanercost not a little in the head, but he was rather doubtful about the loins, and small in the knee. Amalgamation failed to catch any one point from William le Gros or The Era; and Bondholder, who was a true Flatcatcher, stood over rather too much ground, and had excessively large lop ears. General Williams had fine length and great liberty about him, but he was ordinary in his head, and his croup was not only plain, but his tail was badly set on; still, in a couple of years he will take a great deal of beating. He is of Sir Tatton Sykes's blood on both sides, and was trained last season by John Osborne. St. Andrew had a light middle, and was also far too high on the leg; and Farnham was a little chesnut cocktail, with all the varmint cut of the Ratcatchers about him, and with a patch over his blind eye: his legs bore testimony to long service, but you forgot those when you looked at the little wiry chesnut frame they bore. Mr. Stiggins looked, as usual, the showy charger—nothing more; and if Dr. Sangrado had not been a little high and queer on the leg, there were few more perfect horses in the yard. His barrel, neck, and head are beautifully turned, and he reminded us not a little of what Kingston has grown into. Greatheart was a very catching horse, with the beautiful Castrel style of forehand and top; but his loins were defective, and he had completely pumiced hoofs, in addition to an old fracture of one of the pasterns, and except for giving colour and spirit to the scene by his handsome and playful presence, it was difficult to see why he came at all. Spencer did not look himself at all—dull in his eye, loaded in his points; in fact, we could hardly have told the elegant fiery Chester winner, in the lazy, listless bay of Thursday. In the ring he grew a little more animated; but we never, except for one instant, saw him look really himself, and his action is poor at the best of times. Canute improved very much when stripped, and went before his judges with thrice as much gaiety. His back and limbs are unexceptionable for a hunter sire, but his forehand is very ordinary, and he shows especially badly in his walk. He has always been a bad-mettled horse, and he requires a good deal of judicious showing off, and that was well done. Although they also called up Greatheart, General Williams, and Sir Harry Martin a second time, it was soon pretty evident, from watching the judges, that they had only Spencer and Canute in their eye, and, after a long discussion, the victorious white ribbons were handed to Canute, and, as in 1857, Spencer had once more to be content with the green. Why cannot the Royal Agricultural Society hand out its rosettes as promptly, instead of adhering to their system of leaving the decision to ooze out on the Wednesday, and deprive their five shilling visitors of two-thirds of their pleasure and instruction?

The Coachers were an admirable class, and in fact we never saw ten such good horses together, more especially as this sort of horse is fast dying away before the thoroughbred. Yorkshire, however, seems true to them, and keeps them well up to the mark by judicious thoroughbred crossing, instead of resorting to the old heavy Cleveland blood. Two such four-in-hands might have been picked from them as no man sat behind yet. The winner, Inkermann Hero, was a very beautiful colour, and had rather more style than the rest, and stood wonderfully well alone, which is an immense point. General was on the shortest leg of the lot, but his hocks were rather too near; and The Colonel's head was against him. The wonder of the class, however, for his age, was the two-year-old Cardinal, whose merits were also recognized at Driffield the week before; but he was slightly spoilt by a capped hock.

The Roadsters numbered seven; and with the exception of Howthorpe Prickwillow, who was rather neat but small, were quite a picked lot. The winner, Serenader, was a son of the Chester winner, and both he and the second, Young Wildfire, are by Troubadour, and belong to Mr. Ridsdale, of Ripley. They are as unlike as horses can be, as Young Wildfire "is quite the gentleman," while the other has plenty of character in front, but is mean behind. This class require very handy aide-de-camps; and, with the exception of Serenader's, a smart young fellow in plaid, and worth at least two points to his horse, scarcely any of them seemed able either to handle their horses, or to run a yard. Their efforts in the latter line were of the most rheumatic kind. Two roans lent a good deal of style to this show. One of them, Roan Napoleon, had to doff five medals on entering the ring, but still his action was not a triumph; and the other, Achilles, who had been second at Driffield the week before, was deservedly commended. Young Merrylegs carried off the same honour, and no horse in the yard stepped out more stylishly, and the judges seemed never tired of seeing him perform.

If two moderate ones had been left at home, the eight other cart horses would have formed a very choice group. It was understood that Mr. Groves did not choose to send Conqueror, when he learnt that Nonpareil was to enter the lists; and certainly that beautiful dapple bay made competition hopeless, and never showed to finer advantage. Black Douglas, described in the catalogue as 17 hands high, has won nearly as many prizes of a smaller stamp, and was second to him here; and the judges were a good deal taken with Merry Tom, a very superior style of horse, but three trials convinced them that he had no action.

A Magpie hunting mare, with a very mean foal, by Daniel O'Rourke, was the best in her class, which was decidedly weak. Ball was rather coaching, with plain ears and not great back ribs. Marigold had a good foal, but lacked liberty herself; and The Yore, who was at Chester, looked like very ragged and unsatisfactory. Blink Bonny, the winner of the coaching-mare and foal class, had no style whatever about her head and neck, and was, to our minds, far below the Lord of the Manor mare next her, who was very good in front, but short in the croup, with a most remarkably "flush" set tail; and a capital foal by Farnham, Jessie by Old Merrylegs, had it quite to herself in the roadster Mare and Foal class; and the grey winner in the Agricultural Class was as good a cart mare as there was in the yard, though Dutch was not far behind her. The decision in the three-year-old Hunting Gelding class amazed every one; and we believe that the judges themselves defended their fancy on the score of action. Mr. B. Johnson's commended chesnut, by Young Galaor, was a little gaudy, but a hunter all over; and a celebrated master of foxhounds, who stands at no price, and sauntered up to share in the general astonishment, declared that he himself would give £150 more for him than the winner. Orion was rather short, and high on the leg at present, but will make up into a great slapping horse; and the Bay President was up to great weight, but rather coarse in his forehand. Don John was represented by a well grown and rather coaching animal; one of the Cures was neat but small, while the other had all his sire's fine character about the head, and was a particularly nice horse to stand behind; and the Sweetmeat had rare quarters, but was rather dipped in the back. Those wonderful legs and feet which Maroon communicates to all his stock, were seen to great perfection in the pure three-year-old hunting filly of Mr. Gofton's; and the prize coaching gelding, Young Aide-de-camp, was also remarkably true and even made. Polly, the winner of the Three-year-old Hackney Geldings or Fillies had capital legs and length, but we thought her neck a little too long for her vocation; while The Troubadour chesnut had his sire's forehand exactly. The Two-year-old Agricultural Geldings or Fillies were a decidedly good class, and we could have lingered for hours to look at "Bob" and "Drumber," the most exact match, and the best pair of agricultural horses we ever saw in a show yard.

The fifteen in the Four-year-old Hunter Class seemed to give the judges immense trouble, and we thought that they would never have got through them. Vaulter, by Voltigeur, who won in the three-year-old class last year, followed in his stable mate Jeweller's steps, and, although a promising horse, he is hardly so good as we expected the winner of such a prize and the special silver cup to be. The Politician bay had a great deal of compactness and finish about him; and Impudence, although he rather lacks character, especially in his forehand, did much credit to Auctioneer. The Extra Stock entry was rather great in hunters, and the best of them to our mind was Sultan, by the British Yeoman, though he wants to grow down a little. Troubadour got a silver medal in this class, and showed in still greater perfection than he did when he won the hackney prize at Chester. Taking the horse decisions as a whole, they were not so happy as we have known them, and they might have been better if the judges had not dwelt so much. It was, in fact, fully five o'clock before the whole were got through, and the horses left the yard immediately, instead of waiting to wear their honours. The show is next year to be held at Hull, under the presidency of Lord Herries.

PRIZE LIST.

SHORTHORNS.

JUDGES.—W. Bartholomew, Wragby, Lincolnshire,
B. Swaffield, Pilsbury, Ashburne, Notts,
J. B. Thompson, Anlaby, Hull.

Best bull of any age, 25*l.*, to Lord Feversham, Duncombe Park (Duke of Oxford)

Second, 10*l.*, to W. Wetherell, Aldborough, Darlington (Statesman)

Highly Commended—M. Barroby's Marc Antony, and Sir C. R. Tempest's Emperor Napoleon

Commended—T. Barber's Romulus, and W. Wetherell's Lord Scarbro'

Yearling bull, 20*l.*, to S. Marjoribanks, Bushy Grove, Watford (Great Mogul)

Second, 10*l.*, to F. H. Fawkes, Farnley, Otley (Don Giovanni)

Highly Commended—Viscount Strathalan's Retribution

Commended—R. Dudding's Admiral, and H. Ambler's Prince Frederick

Bull calf, upwards of five months old, 10*l.*, to Lieut.-Col. Towneley, Towneley Park, Burnley (The Royal Butterfly)

Second, 5*l.*, to Lord Londesborough, Grimston, Tadcaster

Highly Commended—Lord Feversham's Perambulator, and R. Booth's Lord of the Isles

Cow of any age, in calf or milk, 15*l.*, to R. Booth, Warlaby, Northallerton (Nectarine Blossom)

Second, 5*l.*, to W. Wetherell (Moss Rose)

Highly Commended—J. Douglas's Ringlet

Commended—A. Christie's Modesty

Three years old cow, in calf or milk, and having had a calf, 10*l.*, to J. Douglas, Athelstaneford (Rose of Athelstane)

Second, 5*l.*, to J. T. Robinson, Leckby Palace, Topcliffe

Two years old heifer, in calf, 10*l.*, to J. Douglas, Athelstaneford (Queen of Trumps)

Second, 5*l.*, to R. Booth (Queen Mab)

Highly Commended—Lieut.-Col. Towneley's The Rose of Towneley

Commended—J. Douglas's Venus de Medicis, T. Barber's Miss Feathers, and W. Wetherell's Ayrshire Rose

Yearling heifer, 10*l.*, to R. Booth (Queen of the Isles). Mr. Booth also received the SPECIAL PRIZE for Queen of the Isles, as the best animal in the yard

Second, 5*l.*, to Captain Gunter, Wetherby Grange (Moss Rose)

Highly Commended—J. Douglas's Lady of Athelstane

Commended—J. Grundy's Sweetheart, Lord Feversham's Symphony, Capt. Gunter's Fair Maid of Wetherby, and Sir C. R. Tempest's Crinoline and Surplice

Heifer calf, upwards of five months old, 5*l.*, to J. Douglas, Athelstaneford (Maid of Athelstane)

Second. 3*l.*, to R. Booth (Queen of the Vale)

Highly Commended—J. Grundy's Faith, and Captain Gunter's Duchess 75th

This class *generally commended*

Fat ox under four years old, 10*l.*, to J. Smith, Normanby, Kirbymoorside

Second, 5*l.*, to R. Gell, Grimston, York

Commended—J. W. Pease's ox

Fat cow of any age, 5*l.*, to W. Fletcher, Radmanthwaite, Mansfield

Commended—H. Smith's cow

CATTLE OF ANY BREED.

Cow for dairy purposes, 5*l.*, to W. Stead, Owlerton, Sheffield (Derby)

Second, 2*l.*, to J. T. Robinson, Leckby Palace, Topcliffe

EXTRA STOCK.

A first-class medal to R. Booth, for Bride Elect

Second, to Lieut.-Col. Towneley, for Roan Duchess 2nd

The special prize of 20*l.*, for the best animal in the yard, to R. Booth, for Queen of the Isles

HORSES.

JUDGES.—W. Godson, Sandal Grove, Doncaster,
Samuel Slater, North Carlton, Lincoln,
Wm. Uppleby, Bonby, Barton.

Stallion for hunters, 10*l.*, to C Spence, Huntington (Canute, by Emperor)

Second, 5*l.*, to T. Manfield, Thirkleby Bridge (Spencer, by Cotherstone)

Stallion for coach horses, 10*l.*, to W. Burton, Murton Hall, York (Inkerman Hero)

Second, 5*l.*, to J. Lee, Thirsk

Highly Commended—J. Johnson

Stallion for roadsters, 10*l.*, and second, 5*l.*, to R. B. Ridsdale, Watergate, Ripley (Serenader, and Young Wildfire)

Highly Commended—J. England

Commended—A. Hairsine

Stallion for agricultural purposes, 10*l.*, to Messrs. E. and M. Reed, Beamith Burn (Nonpareil)

Second, 5*l.*, to D. Askham, Howden (Black Douglas)

Mare and foal for hunting, 5*l.*, to W. Angas, Neswick

Commended—S. Kirby and W. Gofton

Mare and foal for coaching, 5*l.*, to T. Wilson, Mount Lodge, Northallerton

Commended—J. Bland

Roadster mare and foal, 5*l.*, to F. Riccall, Warter

Commended—G. Pratt

Mare and foal for agricultural purposes, 5*l.*, to J. Turner, Thornton-le-Beans

Highly Commended—J. Skirrow

Three year old hunting gelding, 5*l.*, to — Harrison, Melton House, Brough

Commended—B. Johnson

Three year old hunting filly, 5*l.*, to W. Gofton, Pockthorpe

Commended—W. Lancaster

Three year old coaching gelding, 5*l.*, to W. Mothersill, Brickholme

Commended—B. Johnson

Three year old hackney gelding or filly, 5*l.*, to F. Dickinson, Lingholme, Filey

Commended—W. Robinson

Three year old gelding or filly for agricultural purposes, 5*l.*, to R. Watson, Maltby in Cleveland

Commended—W. S. Clough

Two year old coaching gelding, 5*l.*, to B. Johnson, Frodingham Bridge

Commended—J. Lee

Two year old coaching filly, 5*l.*, to W. Mothersill, Brickholme

Commended—S. Horsley

Two year old agricultural gelding or filly, 5*l.*, to J. Drury, The Moss, Ripley

Highly Commended—T. Acomb, and J. Simpson

Yearling gelding or filly for agricultural purposes, 5*l.*, to T. Upton, Bolton Percy

Commended—R. Booth

Pair of horses of either sex for agricultural purposes, worked during the season, 10*l.*, to T. Acomb, Poppleton

Commended—J. Simpson

Hackney gelding or mare, not less than four years old nor exceeding six, 5*l.*, to J. Lee, Thirsk

Highly Commended—J. Crompton, Thornholme

Four years old hunter, gelding, or mare, 10*l.*, to J. B. Booth, Killerby, Catterick (Vaulter, by Voltigeur)

Second, 5*l.*, to J. Coulson, Gaterley, Castle Howard (Impudence)

Commended—G. Holmes

SPECIAL PRIZES FOR HORSES.

Five years old hunter, mare, or gelding, warranted sound, and to possess not less than three crosses of blood, 20*l.*, given by Lord Wenlock, to J. Batty, Bishop Monkton (Howe, by President)

Second, 5*l.*, to G. Walmsley, Rudston, Bridlington

Hunter, under seven years old, exhibited in any of the classes or as extra stock, warranted sound, and to have not less than two crosses of blood, a silver cup of the value of 20*l.*, given by the Hon. W. E. Duncombe, M.P., to J. B. Booth, Killerby (Vaulter)

Highly Commended—J. Coulson (Impudence)

Commended—G. Holmes, G. Walmsley, and T. Masterman

A silver medal each to R. B. Ridsdale, Watergate, Ripley (Troubadour), and to L. Hodgson, Highthorne, Easingwold (Black Prince colt)

SHEEP.

JUDGES.—G. Leighton, Osgodby, Scorboro';
H. M'Kinder, Langton Grange, Spilsby; and
— Woods, Osberton, Lincolnshire.

LEICESTER OR LONG-WOOLLED.

Shearling ram, 15*l.*, and second, 5*l.*, to J. Borton, Barton House, Malton

Commended—S. Wiley, Bransby

Ram of any age, 10*l.*, and second, 5*l.*, to J. Borton

Highly commended—J. Simpson, and W. Angas

Pen of five ewes, 5*l.*, to W. Taylor, Thornthorpe, Malton

Second, 3*l.*, to R. Crowe, Speeton, Bridlington

Commended—J. Simpson, Wetherby

Pen of five shearling wethers, 5*l.*, to F. Jordan, Eastburn, Driffield

Second, 3*l.*, to T. Marshall, Blanch, Pocklington.

Pen of five shearling gimmers, 10*l.*, to J. J. Simpson, Pilmoor House, Hunmanby

Second, 5*l.*, to W. Abraham, Barnetby-le-Wold, Ulceby

Commended—W. Holtby, and W. Taylor

COTSWOLD SHEEP.

Ram of any age, 10*l.*, to E. Handy, Sierford, Cheltenham

CROSS-BRED SHEEP.

Pen of five shearling wethers, 5*l.*, to E. Eddison, Headingley-hill, Leeds. (No other entry)

EXTRA STOCK SHEEP.

A first-class medal, to W. Angas, Neswick, Driffield, for a 4-shear ewe

Second, to J. Hall, Kiveton-park, Worksop

Highly commended—S. Staveley

PIGS.

JUDGES.—G. Leighton, Osgodby, Scorboro';
H. M'Kinder, Langton Grange, Spilsby;
— Woods, Osberton, Lincolnshire.

Boar, large breed, 5*l.*, to T. Barker, Woodhouse-lane, Leeds

Second prize not awarded

Sow, large breed, in pig or milk, 5*l.*, to W. B. Wainman, Carhead, Crosshills

Second, 2*l.*, to T. Barker, Woodhouse-lane, Leeds. This class *generally commended*

Boar, small breed, 5*l.*, to J. Harrison, jun., Heaton Norris, Stockport

Second, 2*l.*, to T. Barker, Woodhouse-lane, Leeds

Commended—G. Mangles

Sow, small breed, in pig or milk, 5*l.*, to G. Mangles, Givendale, Ripon

Second, 2*l.*, to Lieut.-Col. Towneley. This class *generally commended*

Sow of any breed, in pig or milk, not qualified to compete in previous classes, 5*l.*, to J. Wilkinson, Roundhay, Leeds

Second, 2*l.*, to M. Barroby, Dishforth, Thirsk

Boar of any breed, not qualified to compete in previous classes, 5*l.*, to J. Gill, Silsden, Keighley

Second, 2*l.*, to J. Wilkinson, Roundhay, Leeds

Three store pigs, of any breed, and of the same litter, from four to nine months old, 5*l.*, to S. Wiley, Brandsby

Second, 2*l.*, to G. Mangles

Boar, large breed, under twelve months old, 3*l.*, to J. Mitchell, Keighley

Sow, large breed, under twelve months old, 3*l.*, to J. Palmer, Thorlby, Skipton

Boar, small breed, under twelve months old, 3*l.*, to T. B. Stead, Leeds

Sow, small breed, under twelve months old, 3*l.*, to J. Wilkinson, Roundhay, Leeds

EXTRA STOCK PIGS.

First silver medal, to G. Mangles

Second, to T. Britton, Heworth, York

WOOL.

JUDGE.—T. Clayton, South Stainley.

LONG WOOL.

Best five hog fleeces, 5*l.*, to J. B. Booth, Killerby

Highly commended—Wm. Abraham, Barnetby-le-Wold

SHORT WOOL.

Best five hog fleeces, 5*l.*, to Edwin Eddison, Headingley-hill, Leeds,

FLAX.

JUDGE.—John Outhwaite, Bainesse, Catterick.

Best specimen of green flax, 5*l.*, to Henry Tennant, Skewkirk, Tockwith

GRAIN.

JUDGE.—John Outhwaite, Bainesse, Catterick.

Best four bushels of white wheat, 2*l.*, to Wm. Lancaster, Morton Grange, Northallerton

Best four bushels, of red wheat, 2*l.*, to F. Hutchinson, Sowerby, Thirsk

Best four bushels of oats, 2*l.*, to F. Hutchinson. (No other entry)

SPECIAL PRIZE.

JUDGES.—Lord Greenock, Thornton-le-street, Thirsk;
J. D. Dent, M.P., Ribstone Hall;
The Hon. G. Lascelles, Harewood;
G. Legard, Easthorpe, Malton;
H. Rutson, Newby Wiske;
Capt. Shawe, Brantingham;
C. W. Strickland, Hildenley, Malton;
H. S. Thompson, Kirby Hall;
Wm. Tindall, Wheatley, Doncaster.

For the best design for labourers' cottages, with complete specifications, 20*l.*, to Mr. Blakemore, Rotherham

Second, 5*l.*, to Messrs. Hickes and Isaac, architects, Bath. (75 competitors)

PRIZES FOR IMPLEMENTS.

JUDGES.—J. Almack, Beverley;
John A. Clarke, Long Sutton, Lincolnshire;
Wm. Hislop, Woolley Park, Wakefield;
John Wheatley, Neswick, Driffield.

CONSULTING ENGINEER.—John Easton, jun., London.

For the best application of steam power to the cultivation of the soil, 50*l.*, to John Fowler, London, for his steam plough

The prize of 25*l.*, for the best implement in the yard, also to Mr. Fowler, for his plough

For the best portable steam engine adapted for farm use; simplicity of construction, durability, and consequent safety in working being equally considered with the economy of consumption of coal, 20*l.*, to Tuxford and Sons, Boston

Highly commended—Robey and Co., Lincoln, and Brown and May, Devizes

Commended—Ruston, Procter, and Co., Lincoln; Wm. Foster, Lincoln; and Davy Brothers, Sheffield

For the best reaping machine, 25*l.*, the prize equally divided between the trustees of Wm. Crosskill, Beverley (for Crosskill's Reaper), and Thomas Parrington, Normanby (for a Burgess and Key's Reaper)

A first-class silver medal, to Robert Cuthbert, Bedale, for reaper

For the best cultivator or grubber, 10*l.*, to Coleman and Sons, Chelmsford

For the best scarifier or surface parer, 10*l.*, to E. H. Bentall, Heybridge

For the best implement for bringing weeds to the surface, after the scarifier or surface parer has been used, 5*l.*, to C. Clay, Walton, Wakefield

For the best horse hoe for corn and turnips on the flat, 5*l.*, to John Naylor, Winterton, Brigg

For the best horse hoe or scuffler, for working between the rows of green crops, 5*l.*, to E. H. Bentall

For the best grubber, for working between the ridges of green crops, 5*l.*, to E. H. Bentall

For any new and improved principle of construction as applied to farm implements, a silver medal, to Messrs. Patterson, Beverley, for a general purpose drill

For the best collection of agricultural implements manufactured by the exhibiter, 5*l.*, to J. and F. Howard, Bedford

Highly commended—A paring plough exhibited by Woofe, Gloucester, and a dry manure drill, by Messrs. Reeves, Maldon

Commended—A Cambridge roller with drill, exhibited by Marshall, York; a screen cleaner, by Sawney, Beverley; a two-and-a-half horse-engine, by Smith and Ashby, Stamford; Hannam's harvest cart, by Busby, Newton-le-Willows, Bedale; a dry manure drill, by Messrs. Reeves; a horse rake, blower with hariff screen, and weighing machine, by Geo. Pinkney, Bridlington; a liquid manure drill, by W. Watkinson, Louth; a chaff cutter, by Richmond and Chandler, Salford, Manchester; and a corn drill, by Dale, Bridlington.

MEETING OF THE COUNCIL.

Lord BOLTON in the chair.

Mr. HANNAM, the secretary, stated that the local committee had decided against a council dinner.

Mr. Harrison and Mr. Councillor Thompson, of Hull, were introduced as a deputation from that town to solicit the society to hold its next annual meeting at Hull; and, on the motion of H. S. Thompson, of Kirby Hall, it was decided that the next meeting should be held at Hull.

Lord Herries was appointed president for the next year.

The other appointments were as follow:—

VICE-PRESIDENTS.—Lord Bolton, the High Sheriff (J. W. Childers, Esq.), and Captain Shawe.

COUNCIL.—Lord Wenlock, the Hon. Admiral Duncombe, M.P., Sir J. V. B. Johnstone, Bart., M.P., Sir Digby Cayley, Bart., W. R. C. Stansfield, of Esholt, E. H. Reynard, of Sunderlandwick, J. Hall, of Scorbro', W. Bethell, of Rise, J. Barber, of Sproatley, W. Langdale, C. W. Strickland, J. W. Pease, jun., and James Walker, jun.

The annual meeting was subsequently held, when the resolutions of the Council were confirmed.

THE AFTER BUSINESS OF THE CHESTER SHOW.

With the bustle of the great gathering quite over—having partially recovered from the excitement of the scene—we sit down to more calmly reflect on all we have seen and heard. The Council of the Society do as a body precisely as any general visitor might with one or two friends—they have another hour or so to talk it all over. And they talk and think much in the same way as might common mortals. In the first place they had to assure the absentees how well everything went off at Chester, what a meeting they had missed, how they should have been there, and so on. And those who were not there came straightly to explain why they were not. The fixture was a week or a fortnight too late. Harvest, in a word, was just on, and at so important a crisis it was quite impossible to leave home. We hear this excuse on all sides. The Meeting must be earlier in the summer. The practical men on the Council, farmers who have themselves harvest work to attend to, at once admit the justice of the complaint; and Mr. Jonas Webb, speaking in their name, has directly referred to the inconvenient season at which the national show had been held. The *first* rather than the last week in July would be much more suitable, and we are not quite sure but that the members generally should be polled on the question:—"You will oblige the Council by stating which you think would be the best week for holding the annual exhibition of stock and implements."

There was a matter, however, of yet more passing interest attached to the proceedings of this same Council Meeting. It was the same which had signalized the show week itself. What would be the result of the steam plough trials? Much to their credit, the judges had an ample report prepared in time for the meeting. They have embodied with the decision their reasons for arriving at it. This appears in full in another column, and the Council have adopted all thus advised. Rumour as usual was very busy in the show-yard—The Society would not even now recommend the use of a steam cultivator outright—It would, however, by way of encouragement, give a few hundred pounds to one man, and perhaps a medal to another. But it has gone far beyond this. The judges declare that, "From the results of the trials intrusted to our decision, and conducted throughout under our immediate supervision, it is beyond question that Mr. Fowler's machine is able to turn over the soil in an efficient manner, at a saving, as compared with horse labour, of on light land 2½ to 25 per cent.; on heavy land, 25 to 30 per cent.; and in trenching, 80 to 85 per cent.; while the soil in all cases is left in a far more desirable condition and better adapted for all the purposes of husbandry. We are therefore unanimously of opinion that he is fully entitled to the prize of £500, and we now give our award accordingly."

And the secretary is at once instructed to communicate this to Mr. Fowler. At the same time, it is only justice to add, that he is also directed to address the Messrs. Howard, of Bedford, on the performance of Smith's implement. Of this the Judges say—"The results of the trials of Messrs. Howard's machine also prove that the soil can be inverted in an efficient manner, and at a less cost than by horse or manual labour. We think, therefore, that some acknowledgment of the merits of their machine is due from the Society, and we beg to recommend for the consideration of the Council that a large gold medal of honour be presented to Messrs. Howard, 'for the practical introduction of Smith's application of steam power to facilitate autumnal cultivation, now generally admitted to be desirable on all descriptions of soils.' The Council will be gratified to learn that already twenty-three of these machines have been sent out by the manufacturers, and that twenty of them are being successfully worked by tenant farmers."

Never, indeed, was there such a desire evinced to bring anything into fashion. The judges' report is written in a style remarkable for the encouragement it would give, and the consideration it would make for any failure which came under their notice. Still, it is evident that so far as this year of 'fifty-eight goes, there are only two implements that in public trial have in any way realized the object aimed at. Either of these has accomplished much, and their use is now hardly more than a question of expense. Mr. Fowler, indeed, has little further to contend with. His work, as we have said over and over again, is excellent, and the only point is how far the farmer will be justified in making the necessary outlay. To it, though, in some shape or other, he must come. "By the aid of such machinery"—we are quoting the judicial decree—"we can carry out a complete system of autumnal cultivation now so generally admitted to be desirable, but which it is extremely difficult to effect with the ordinary force of a farm, in ordinary seasons, and under ordinary circumstances. We can continue our cultivation by ploughing or otherwise, well-nigh regardless of weather, and upon land which would not submit to the pressure of horse labour. We have perfect control over the work we wish to have done; and when it is done, it is found to be more regular throughout, and to be in a more open and desirable condition than could be obtained by the best and most judicious application of the ordinary implements of a farm. These are points which we cannot too strongly recommend to the attention of those interested in the advancement of agriculture."

It is significant to see how the same feature appears again and again on the agenda of this monthly meeting of Council. A little further on Mr. J. A. Williams sends the Society copies of his work on Steam Cultivation—a sensible Essay on preparing the land for the use of such a power that we have already noticed. Then Mr. Smith, of Woolston, with characteristic good temper, forwards his recently issued "Challenge for a thousand," although of late thousand pound challenges have not done much for those who made them. Thirdly, Mr. Fiskin claims to be the Columbus of the art, and demands the recognition of his right to be ranked as the original inventor of ploughing by steam. Further, Mr. Burcham details the only conditions upon which a prize for steam ploughing should be awarded; and, taking these at once for granted, proceeds to suggest, with possibly an eye to the spoil, that such a premium should not be less in amount than a thousand. The Council itself, not to be behindhand, volunteer another inducement for the development of the same principle. They will give twenty-five pounds to the gentleman who will furnish them with the best essay on that suggestive and prolific theme—STEAM CULTIVATION. It is noticeable that the Bath and West of England Society has a prize now open to competition of precisely the same amount, and on the same subject. Would one essay be eligible to take the two?

And now, as country gentlemen, after all, really set the fashion in important points, the House in Hanover Square, like the other Houses in Westminster, has closed its doors. There are assizes, harvesting, grouse-shooting, and other autumn sports to call them away. There will be the home-trial with the reaper, or perhaps, even, as an especial treat, a field or two operated upon under the direction of Mr. Howard or Mr. Fowler. But the formula of official life is over. Mr. Hudson calmly turns his back on minutes of meetings; Mr. Gibbs folds up his Report of the Judges' well-worn authority; and his Grace the Duke of Marlborough, having duly read himself in, awaits to fulfil hereafter the good promise he has already made as President of the Society.

MANCHESTER AND LIVERPOOL AGRICULTURAL SOCIETY.

The eleventh annual meeting of this Society has been fixed to take place at Manchester, on Thursday and Friday, the 9th and 10th of September next; and the entries closed on the 30th ult. Through the liberality of the inhabitants of Manchester a large amount has this year been raised for special prizes; and, including the amount voted from the funds of the Society, the Committee of Management had not less than £1,000 at their disposal. With such an amount of premiums, and which appear to have been judiciously appropriated, there can be little doubt of the complete success and importance of the meeting. We have been favoured with copies of the prize lists and regulations, and purpose to draw the attention of our readers to some of the principal features. Prizes are offered for cattle, horses, sheep, pigs, implements, cheese, butter, poultry, vegetables, seeds, roots, fruit, and flowers, and for saddlery; the total number being not less than 252. We notice, first, the Society's prizes, which are open to general competition. These are for the best Shorthorn bulls of different ages, for the best cows or heifers in-milk or in-calf, the best two-year-old heifers, and the best yearling heifers, all without restrictions as to breed. In the classes for horses, the premiums open to general competition are for stallions best adapted for agricultural purposes, dray-horses, horses for road purposes, and thorough-bred horses. Four prizes of £3 each are also offered on the same condition for the best Leicester, Southdown, Shropshire, and Cotswold or other long-woolled rams, except Leicesters. There are a number of other prizes for stock open to members of the Society on the conditions which are set forth in the list; and prizes are also offered by the Society for vegetables and seeds; and medals and prizes of the value of £50 for agricultural implements.

The principal prizes announced by the local committee are open to general competition. In the classes for horned cattle there are two premiums, of £10 and £5, for the best bulls of any breed, not exceeding three years old; the same amounts for bulls not exceeding two years old; and £5 and £3 for yearling bulls. Prizes of £10 and £5 respectively are offered to the farmer or dairyman who shall exhibit the best lot of four dairy cows, in-milk or in-calf; and prizes of the like amount for the best pairs of two-year-old heifers; and also for the best pairs of stirks. Two premiums, of £20 and £10, are offered to cattle dealers who shall exhibit the best lot of six dairy cows without restriction as to breed. Some of these prizes, and others in the special list, are of a novel character, but they appear to be well calculated to give great additional interest to the exhibition. With regard to special prizes for dairy stock, we heard a very excellent suggestion made a few days ago, viz., that the judges selected to award the prizes in these classes should, in all cases, be experienced dairy farmers, and not breeders of stock only. Were this the case, the properties required in good dairy cattle would be more distinctly recognised than they have hitherto been, and the utility of competitions of this nature would soon be universally acknowledged.

In addition to the premiums for cattle to which we have referred, there are first and second prizes of £10 and £5 respectively, in each case, offered to graziers, cattle salesmen, or butchers, for the best pair of shorthorned and West Highland heifers, "showing the most symmetry, quality of meat, and weight;" for the best pair of Polled or Galloway Scots, and for the best pair of heifers, bred and fed in Ireland—the whole of these premiums being open to general competition.

The special prizes for horses are numerous, and range from £10 to £3. They are for horses best adapted to draught purposes, and for road purposes, thorough-bred horses, hunters, and cob horses; there being, in addition, prizes of £15 and £7 offered to dealers for the best pair of carriage horses; £10 for the best pair of ponies, not exceeding fourteen hands high, and suitable for harness; and £5 for the best gelding or mare pony, not exceeding fourteen hands—the whole being open to all competitors. It is, however, very properly stated in the regulations that no exhibitor shall enter any animal for two distinct prizes, this referring to every part of the exhibition.

There are six prizes for cheese, ranging from £15 to £3, "made on the exhibitor's farm in Lancashire or Cheshire, or within the limits of the Society, viz., thirty-five miles round Warrington;" and three prizes for butter, the competition being confined to the same districts. In the classes for seeds and roots, prizes are offered for wheats and oats of different varieties; for beans, barley, fluke or other varieties of kidney potatoes, swede turnips, mangel-wurzel of different varieties; and a premium of £5 is added for "the seedsman who shall exhibit the best collection of grasses, grass seeds, wheat, oats, and barley, in the ear; turnips, mangels, and general agricultural seeds." There are also a number of prizes offered for fruits, vegetables, and flowers, to be competed for by cottagers, being labourers, artificers, or working men: these prizes will have a useful effect in inducing persons to keep up a show of flowers in their gardens during the autumnal season. The last special prize is one of £5, offered to the saddler who shall exhibit "the best set of harness for agricultural purposes, lightness, durability, and cheapness being essential."—Abridged from the *Midland Counties Herald.*

PLATE II.

FREDERICK,

A CELEBRATED SHORT-HORN BULL.

Frederick (11489), bred by Colonel Towneley, of Towneley Park, was calved February 6th, 1849; he was got by Duke (9032), dam (Bessy) by Thick Hock (6601), grandam (Barmpton Rose) by Expectation (1988), great grandam by Belzoni (1709), gr. gr. g. d. by Comus (1861), gr. gr. gr. g. d. by Denton (198), — by a son of Comet (155).

Unlike the majority of our most famous shorthorns, Frederick was never entered at any of our agricultural shows. Colonel Towneley very handsomely gave his tenantry the use of him up to four years old, when the bull was brought back home again to Towneley. Since his return to this famous herd, he has of course had better opportunities, and he now ranks as one of the most fashionable stock getters of the day. Either for the prices they have made, or the prizes they have taken, the produce of no animal has ever yet equalled that of Frederick. For instance, his son, Master Butterfly, the first prize bull at Chelmsford, realized the unprecedented sum of twelve hundred guineas; while such names as Roan Duchess the Second, Blanche the Sixth, Frederick the Second, Ringlet, The Royal Butterfly, and others, speak still further to his repute.

Frederick, though now upwards of nine years old, is as fresh as ever he was; and his calves of this year are quite as promising as they hitherto have been, which is saying no little for them.

WARTS ON HORSES.—The following recipe appeared in *The Field*:—"One part of arsenious acid, in a state of fine powder, intimately mixed with four parts of lard, may be applied over and around the excrescences every other day. This will excite sloughing action, and in about a fortnight the warts will be thrown off." I have used it with perfect success on a valuable young thorough-bred stallion, which had upwards of a score of large warts upon him. Its operation was not quite so rapid as stated in the recipe, as it was five or six weeks from the first application before the last of the warts dropped out. The wounds are now healing fast. The warts had previously been rubbed with iodine, under the advice of a local veterinary surgeon, but without effect.—CARLISLE, *in Field.*

THE BAKEWELL-FRAMED LINCOLN SHEEP.

SIR,—It has been asserted by many breeders of short-woolled sheep that a ram is not to be found, nor ever has been, having the Bakewell cast or mould with a Lincolnshire coat of wool on his back. As a proof that their opinions are erroneous, I will mention three Lincoln rams, of different years, belonging to different men; and I give them as model and specimen sheep for profit. In the year 1844, Mr. Tirrell, of Eagleton, near Oakham, Rutland, let an extraordinarily good Lincoln three-shear ram to Mr. Clarke, then bailiff to the Marquis of Exeter. He was used by Mr. Ivins, an eminent ram breeder, of Haydon, near Banbury. This famous ram was exhibited at the Northampton great ram fair on the 19th of September, and struck many spectators with admiration when they beheld heavy wool, mutton, and the Bakewell symmetry combined. Mr. Tirrell has bred from the best flocks in the county of Lincoln for upwards of half a century, and in 1855 he bought a shearhog ram at Peterborough fair, of Mrs. Casswell, for £40; and last year he gave the well-known Mr. Kirkham, of Hagnaby, £48 3s. 6d. for a ram, at the same fair. Mr. Tirrell and his son let yearly upwards of 130 rams, without a show-day, and without taking any to fairs or markets.

The second Bakewell Lincoln ram was bred by the above-mentioned Mr. Kirkham, and was sold by auction at Peterborough for £95, three years back, to the celebrated ram breeder, Mr. Casswell, of Laughton, near Falkingham.

> "The true value of anything,
> Is what by auction it will bring."

The third Bakewell Lincoln ram was bred by Mr. John Stokes, of Caldecott, Rutland, and exhibited last year at Uppingham, Rockingham fair, Kettering fair, and Peterborough, where £70 was offered for him. Common sense says, that if three male sheep can be bred in the desired form, and Lincoln wool upon them, some of the sisters of the said rams will of course be of the same cast and wool. Having obtained what you require in male and female, do not put brother to sister, but to ewes of the same stamp not related, which would produce the most profitable breed of sheep upon the face of the earth. The reason of Mr. Tirrell letting so many rams, and so readily, to a vast number of old customers, is, that he is not an expensive or extravagant keeper or feeder; so that he can afford to let his half-fat sheep at less money than the high and expensive feeders: and, although his sheep are lean, they are of the best Lincoln blood—nay, second to none—and fitter for the purpose for which they are kept than monstrously fat house, *alias* stall-fed, sheep, which require lifting up, and are fitter for the butcher than to put to ewes. I have known Cotswold three-shear rams stall or house-fed until they have weighed alive upwards of 30 stone, or above 70lbs. per qr. when slaughtered. Mr. Tirrell says all rams ought to be allowed to rove at large: exercise is natural and beneficial to every animal.

I conclude my letter by stating that report says, upon good authority, that Mr. Bryan Ward, of Drayton-on-Well and Leicestershire, makes upwards of £1,200 a-year by the letting of Lincolnshire rams of the best blood. The *Mark Lane Express* has always been opposed to over-feeding male animals.

SAMUEL ARNSBY.

Millfield, Peterborough, Aug. 3rd, 1858.

MR. RAREY'S SYSTEM OF HORSE-TAMING.

(Concluded from page 102.)

ON BALKING.

Horses know nothing about balking, only as they are brought into it by improper management, and when a horse balks in harness it is generally from some mismanagement, excitement, confusion, or from not knowing how to pull, but seldom from any unwillingness to perform all that he understands. High spirited, free-going horses are the most subject to balking, and only so because drivers do not properly understand how to manage this kind. A free horse in a team may be so anxious to go, that when he hears the word he will start with a jump, which will not move the load, but give him such a severe jerk on the shoulders that he will fly back and stop the other horse; the teamster will continue his driving without any cessation, and by the time he has the slow horse started again he will find that the free horse has made another jump, and again flown back; and now he has them both badly balked, and so confused that neither of them knows what is the matter, or how to start the load. Next will come the slashing and cracking of the whip, and hallooing of the driver, till something is broken or he is through with his course of treatment. But what a mistake the driver commits by whipping his horse for this act! Reason and common sense should teach him that the horse was willing and anxious to go, but did not know how to start the load. And should he whip him for that? If so, he should whip him again for not knowing how to talk. A man that wants to act with any rationality or reason should not fly into a passion, but should always think before he strikes. It takes a steady pressure against the collar to move a load, and you cannot expect him to act with a steady, determined purpose while you are whipping him. There is hardly one balking horse in five hundred that will pull true from whipping; it is only adding fuel to fire, and will make him more liable to balk another time. You always see horses that have been balked a few times, turn their heads and look back, as soon as they are a little frustrated. This is because they have been whipped and are afraid of what is behind them. This is an invariable rule with balked horses, just as much as it is for them to look around at their sides when they have the bots; in either case they are deserving of the same sympathy, and the same kind rational treatment.

When your horse balks or is a little excited, if he wants to start quickly, or look around and doesn't want to go—there is something wrong, and he needs kind treatment immediately. Caress him kindly, and if he doesn't understand at once what you want him to do, he will not be so much excited as to jump and break things, and do everything wrong through fear. As long as you are calm, and keep down the excitement of the horse, there are ten chances to have him understand you, where there would not be one under harsh treatment, and then the little *flare up* would not carry with it any unfavourable recollections, and he would soon forget all about it, and learn to pull true. Almost every wrong act the horse commits is from mismanagement, fear, or excitement; one harsh word will so excite a nervous horse as to increase his pulse ten beats in a minute.

When we remember that we are dealing with dumb brutes, and reflect how difficult it must be for them to understand our motions, signs, and language, we should never get out of patience with them because they don't understand us, or wonder at their doing things wrong. With all our intellect, if we were placed in the horse's situation it would be difficult for us to understand the driving of some foreigner, of foreign ways and foreign language. We should always recollect that our ways and language are just as foreign and unknown to the horse as any language in the world is to us, and should try to practise what we could understand were we the horse, endeavouring by some simple means to work on his understanding rather than on the different parts of his body. All balked horses can be started true and steady in a few minutes time; they are all willing to pull as soon as they know how, and I never yet found a balked horse that I could not teach to start his load in fifteen, and often less than three, minutes' time.

Almost any team, when first balked, will start kindly if you let them stand five or ten minutes as though there was nothing wrong, and then speak to them with a steady voice, and turn them a little to the right or left, so as to get them both in motion before they feel the pinch of the load. But if you want to start a team that you are not driving yourself, that has been balked, fooled and whipped for some time, go to them and hang the lines on their hames, or fasten them to the waggon, so that they will be perfectly loose; make the driver and spectators (if there are any) stand off some distance to one side, so as not to attract the attention of the horses; unloose their check-rein, so that they can get their heads down if they choose; let them stand a few minutes in this condition until you can see that they are a little composed. While they are standing you should be about their heads, gentling them; it will make them a little more kind, and the spectators will think that you are doing something that they do not understand, and will not learn the secret. When you have them ready to start, stand before them, and as you seldom have but one bulky horse in the team, get as near in front of him as you can, and if he is too fast for the other horse, let his nose come against your breast: this will keep him steady, for he will go slow rather than run on you; turn him gently to the right, without letting him pull on the traces, as far as the tongue will let them go; stop them with a kind word, gentle them a little, and then turn them back to the left, by the same process. You will have them under your control by this time, and as you turn them again to the right, steady them in the collar, and you can take them where you please.

There is a quicker process that will generally start a balky horse, but not so sure. Stand him a little a-head, so that his shoulders will be against the collar, and then take up one of the fore-feet in your hand, and let the driver start them, and when the weight comes against his shoulders, he will try to step; then let him have his foot, and he will go right along. If you want to break a horse from balking that has long been in the hibit, you ought to set apart a half-day for that purpose. Put him by the side of some steady horse; have check-lines on them; tie-up all the traces and straps, so that there be nothing to excite them: do not rein them up, but let them have their heads loose. Walk them about together for some time as slowly and lazily as possible; stop often, and go up to your balky horse and gentle him. Do not take any whip about him, or do anything to excite him, but keep him just as quiet as you can. He will soon learn to start off at the word, and stop whenever you tell him.

As soon as he performs rightly, hitch him in an empty waggon; have it stand in a favourable position for starting. It would be well to shorten the staychain behind the steady horse, so that if it is necessary he can take the weight of the waggon the first time you start them. Do not drive but a few rods at first; watch your balky horse closely, and if you see that he is getting excited, stop him before he stops of his own accord, caress him a little, and start again. As soon as they go well, drive them over a small hill a few times, and then over a larger one, occasionally adding a little load. This process will make any horse true to pull.

TO BREAK A HORSE TO HARNESS.

Take him in a light stable, as you did to ride him; take the harness and go through the same process that you did with the saddle, until you get him familiar with it, so that you can put it on him, and rattle it about without his caring for it. As soon as he will bear this, put on the lines, caress him as you draw them over him, and drive him about in the stable till he will bear them over his hips. The *lines* are a great aggravation to some colts, and often frighten them as much as if you were to raise a whip over them. As soon as he is familiar with the harness and lines, take him out and put him by the side of a gentle horse, and go through the same process that you did with the balking horse. Always use a bridle without blinds when you are breaking a horse to harness.

HOW TO HITCH A HORSE IN A SULKY.

Lead him to and around it; let him look at it, touch it with his nose, and stand by till he does not care for it; then pull the shafts a little to the left, and stand your horse in front of the off wheel. Let some one stand on the right side of the horse, and hold him by the bit, while you stand on the left side facing the sulky. This will keep him straight. Run your left hand back, and let it rest on his hip, and lay hold of the shafts with your right, bringing them up very gently to the left hand, which still remains stationary. Do not let anything but your arm touch his back, and as soon as you have the shafts square over him, let the person on the opposite side take hold of one of them, and lower them very gently to the shaft-bearers. Be very slow and deliberate about hitching; the longer time you take the better, as a general thing. When you have the shafts placed, shake them slightly, so that he will feel them against each side. As soon as he will bear them without scaring, fasten your braces, &c., and start him along very slowly. Let one man lead the horse, to keep him gentle while the other gradually works back with the lines till he can get behind and drive him. After you have driven him in this way a short distance, you can get into the sulky, and all will go right. It is very important to have your horse go gently when you first hitch him. After you have walked him awhile, there is not half so much danger of his scaring. Men do very wrong to jump up behind a horse to drive him as soon as they have him hitched. There are too many things for him to comprehend all at once. The shafts, the lines, the harness, and the rattling of the sulky, all tend to scare him, and he must be made familiar with them by degrees. If your horse is very wild, I would advise you to put up one foot the first time you drive him.

HOW TO MAKE A HORSE LIE DOWN.

Everything that we want to teach the horse must be commenced in some way to give him an idea of what you want him to do, and then repeated till he learns it perfectly. To make a horse lie down, bend his fore leg and slip a loop over it, so that he cannot get it down. Then put a circingle around his body, and fasten one end of a long strap around the other fore leg, just above the hoof. Place the other end under the circingle, so as to keep the strap in the right direction; take a short hold of it with your right hand; stand on the left side of the horse, grasp the bit in your left hand, pull steadily on the strap with your right; bear against his shoulder till you cause him to move. As soon as he lifts his weight, your pulling will raise the foot, and he will have to come on his knees. Keep the strap tight in your hand, so that he cannot straighten his leg if he rises up. Hold him in this position, and turn his head towards you; bear against his side with your shoulder, not hard, but with steady equal pressure, and in about ten minutes he will lie down. As soon as he lies down, he will be completely conquered, and you can handle him as you please. Take off the straps, and straighten out his legs; rub him lightly about the face and neck with your hand the way the hair lies; handle all his legs, and after he has lain ten or twenty minutes, let him get up again. After resting him a short time make him lie down as before. Repeat the operation three or four times, which will be sufficient for one lesson. Give him two lessons a-day, and when you have given him four lessons, he will lie down by taking hold of one foot. As soon as he is well broken to lie down in this way, tap him on the opposite leg with a stick when you take hold of his foot, and in a few days he will lie down from the mere motion of the stick.

HOW TO MAKE A HORSE FOLLOW YOU.

Turn him into a large stable or shed, where there is no chance to get out, with a halter or bridle on. Go to him and gentle him a little, take hold of his halter and turn him towards you, at the same time touching him lightly over the hips with a long whip. Lead him the length of the stable, rubbing him on the neck, saying in a steady tone of voice as you lead him, "COME ALONG, BOY!" or use his name instead of "boy," if you choose. Every time you turn touch him slightly with the whip, to make him step up close to you, and then caress him with your hand. He will soon learn to hurry up to escape the whip and be caressed, and you can make him follow you around without taking hold of the halter, If he should stop and turn from you, give him a few sharp cuts about the hind legs, and he will soon turn his head towards you, when you must always caress him. A few lessons of this kind will make him run after you, when he sees the motion of the whip—in twenty or thirty minutes he will follow you about the stable. After you have given him two or three lessons in the stable, take him out into a small lot and train him; and from thence you can take him into the road and make him follow you anywhere, and run after you.

HOW TO MAKE A HORSE STAND WITHOUT HOLDING.

After you have him well broken to follow you, stand him in the centre of the stable—begin at his head to caress him, gradually working backwards. If he move, give him a cut with the whip, and put him back to the same spot from whence he started. If he stands, caress him as before, and continue gentling him in this way until you can get round him without making him move. Keep walking around him, increasing your pace, and only touch him occasionally. Enlarge your circle as you walk around, and if he then moves, give him another cut with the whip, and put him back to his place. If he stands, go to him frequently and caress him, and then walk around him again. Do not keep him in one position too long at a time, but make him come to you occasionally, and follow you around the stable. Then stand him in another place, and proceed as before. You should not train your horse more than half an hour at a time.

THE USES OF THE HORSE.

We took occasion, some months ago, to speak of the commercial value of the dead horse; but the living animal now occupies a considerably-increased share of attention at home and abroad. So far from machinery and railroads and steam-power dispensing with the services of numbers of the equine race, the animal is more than ever in request, both for pleasure and laborious service.

The steam-plough has not yet susperseded the usual horses for tilling the soil; nor have railroads caused draught-horses to be consigned to the knacker's yard or the shambles for the use of the hippophagist. The more traffic there is carried on by the iron ways, and the more extended the suburbs of cities become, the larger is the demand for cabs and omnibuses. Brewers' drays, dock-waggons, and carriers' carts are not yet propelled by steam. The hunter, the frequenter of Rotten Row, the mounted trooper, and the squatter in Australia still make large demands for horseflesh; and the price of the animals does not go down.

The omnibus lines in London, Paris, New York, Philadelphia, &c., draw largely upon horses. Even in the last-named city, 2,000 horses are employed on omnibuses.

In the United Kingdom, we have of horses, of all kinds, probably about 2,250,000 at the present time; and, estimating them one with the other at £15 all round, this would give a total value of nearly £34,000,000. Prussia has nearly as many; but of many of the European states we have no definite accounts.

Russia, however, is the country for horses, and numbers at least 18,000,000 or 20,000,000. In the United States there are about 5,000,000 horses and mules, and about 1,500 of each are annually shipped.

In California, the price of a good dray-horse ranges from £80 to £100, and a pair of carriage-horses £400.

The expense of rearing a horse in India, until three years old, is said to be about £6, in Kentucky £8 to £9, and its value £14 to £30; in Maine, the cost till four years old, is £12, and the price £20 and upwards; in Missouri, the cost is £4 to £5, and the average price about £20.

In some American States, in India, and the British colonies, horses are still in high demand; and the trans-shipment gives a considerable employment to shipping. We have ourselves gone on importing several hundreds yearly from France, although we have also exported hunters, race-horses, and brood mares to different quarters.

In the eastern countries beyond Bengal, the horse is seldom used for draught; and the race is a diminutive one, the ponies being only employed for riding now and then. He is but poorly fitted for carrying burdens, and useless for the plough, the cart, or cavalry purposes. Large draughts have recently had to be made from the Cape Colony and Australia for mounting the cavalry in India. If the risk of loss on the passage were less, the traffic would be even greater.

Our last files of Cape papers furnish some interesting details respecting numbers and prices. Besides steamers and transports, many private vessels had been taken up by the Government to convey horses from the Cape to Calcutta. The probabilities of securing freight for horses at the Cape for India have induced shipowners to send out vessels with coals to Table Bay, the stagnation and depression in trade, from the foreign competition by ships, being now very great. The prices given for horses for the Indian service at Cape Town is £35 for horses in condition, and £30 for those out of condition. The total number of horses exported from Table Bay last year to all parts was 1,270, valued at £41,080, giving an average valuation on board of about £33; but this includes some high-priced horses for Mauritius. The "re-mounts" for India averaged about £32 for the 650 shipped last quarter.

The Indian Government is also drawing largely upon the Australian market for horses. They are fine animals, not so large as the English horse, but active, muscular, and hardy to a degree. On his first ride of any distance, although the new comer may not be charmed by the manner in which the horse is broken, he is astonished at his power of endurance. The English thorough-bred horse can beat the oriental horse anywhere and everywhere, and in all respects. At the India races, the whole-bred and half-bred English horses invariably beat the Arabs.

In the United Kingdom the sight of a mule is an exceptional instance; but in many countries, such as South America, the Cape Colony, and the United States, they are much esteemed. In Morocco there is said to be over a million of mules kept. In Peru and Brazil there are large numbers kept. In the province of Minas as many as 260,000 are actually employed; and the annual destruction of these hardy animals there is not less than from 18,000 to 20,000. In the United States there were, according to the last census, 600,000 asses and mules. In the Cape Colony there are about 4,000 or 5,000, valued at £10 each.

A large trade was formerly carried on with the Windward and Leeward Islands from the Spanish Main, about 30,000 having been shipped annually from Central America; but now the number is scarcely half so great. To Peru at least 50,000 are brought every year from the States of the River Plate, and a great many are sent to Mauritius.

Judging from the duty paid by horse-dealers, horse-drivers, and owners of race-horses, the trade in horses is as active as ever, and the price of good animals is fully maintained. Whether Mr. Rarey can accommodate us with zebras for the saddle or draught, after the suggestion of Mr. Punch, remains to be seen; but any addition to our beasts of pleasure and burden would certainly be acceptable, despite the convenience of railways for long journeys.

LANDLORD, TENANT, AND LABOURER.—THE DAY AT SILSOE.

There is a fine connecting line between Landlord, Tenant, and Labourer. So fine indeed is it drawn at times, as to be scarcely perceptible to the naked eye. It would seem to be rather left to the imagination than to the more practical of the senses. Of the two, it is quite as often heard as seen. It delights especially in public assemblies; giving a kind of halo to the proceedings, and affording infinite subject to the orator. Of course its origin is traced in high places, while custom has so ordained that it should generally end there. The council wisdom of the best of our agricultural societies humbly offers all the talk to the landlords; or, if the tenant is brought in, it is just when people have really no time to listen to him. Still, the line is sketched out boldly enough on such occasions, and even if the farmer or his man has little to say for himself, there are plenty to say it for him. As far as "the able address of the noble lord," the "one cheer more," and all that sort of thing go, we really ought to be very well satisfied.

Still there is a public body, at whose meetings the second-class, at least, do speak for themselves. The London, or, as it has been latterly written, the Central Farmers' Club, has, in fact, earned something of a character for speaking out. Many a little sensation has followed in other places from what has been said here. Many a landlord has asked his adviser whether what he hears be merely wild talk, or something more? In a word, the Club has come to rather pride itself on its independent tone, and promulgation of plain truths. The influence of the scene and place clearly has its effect, and men are known to declare themselves here with far more confidence than they ever would when at home. It is not too much to add that such an organ was really wanted. The landlord has many a mouthpiece, but the tenant scarcely any other so accessible or so useful.

It may be, as it often has been, a question how the higher powers would regard such an instrument? At one time, no doubt, with evident distrust and dissatisfaction. The progress of the Club, however, has told upon this prejudice. The soundness of the principles advocated in Bridge-street have generally been maintained, for the simple reason that they have been well tested ere they were advanced. Proof and Practice are indeed the watchwords of the Society, and we have had a very forcible example of this during only the last week. In the discussion subjects for this year, that for November next, standing in the name of Mr. Trethewy, is thus written: "The Allotment System—its Uses and Abuses." Acting well up to this "Proof and Practice" motto, the introducer of the question will not rest content with what he can say to his brother members; but he prefaces as a prologue to his paper, "Come and see what we are doing." As the resident agent of Lord de Grey's estates in Bedfordshire, Mr. Trethewy invited the more active members of the Club to inspect the system of Labourers' Allotments as practised on that property.

So far, at any rate, the Club is defining yet more clearly the line of mutual interest between the farmer and labourer. But it has auspiciously been allowed to go further. When Lord de Grey heard that the Farmers' Club was coming to see the Silsoe allotments, he at once placed the hospitalities of Wrest at their disposal. They were to drive round in the morning and see the farming and gardening, the tile making, and draining; but they were to finish at the family seat, where the best of entertainment awaited them. Whether they feasted the eye or the palate—whether they roamed through the beautiful grounds, almost unrivalled as they are for good taste and good keeping, or sat down in due course to dine in the banquet room—they were alike welcome. The Farmers' Club came especially to see the labourer, and they remained by as especial invitation the guests of the Lord. We have traced out the line clearly enough at last—Lord de Grey as the landowner—the Club as the farmer—and the labourer as equally the care of either. Could the Agent know a more pleasing office than thus bringing the three together?

The visit was paid on Friday, July 30. Harvest business naturally kept some of the invited at home, and indisposition, we are sorry to say, one or two more. Mr. Owen, however, as Chairman, and Mr. Corbet, as Secretary, officially represented the Club; while the Reverend C. T. James is, by this, almost as directly recognized as its Chaplain. Then the farmers of the county, and at the same time members of the Club, included such men as Mr. Purser of Willington, Mr. Thomas of Bletsoe, Mr. Norman Taylor, and Mr. Charles Howard; while Mr. King came from Berkshire, Mr. Page and Mr. Smith from Hertfordshire, Mr. Barwell from Northampton, and Mr. Day from Huntingdon. Mr. Bennett, the agent of another good county landlord, his Grace the Duke of Bedford, was also present; and Mr. James Howard stood for the implements of the Farm, and Mr. Edward Purser for its manure trade. Mr. Tuxford answered for the agricultural Press, and Mr. Peppercorn acted as aid-de-camp to Mr. Trethewy in doing the honours of the day.

Such "days" are now becoming characteristic of the times; but we never remember one that passed off so thoroughly well. There was a general spirit of good fellowship prevailing, mainly due of course to the Club association. There was the best taste again evinced in the reception of the company, and no making of "great men" nor fine compliments. The consequence of this was that every one was in the best humour to be pleased, and we are sure there was not a man but who will remember this as one of the pleasantest visits he ever paid. In fact, as he drove round the well-farmed estate, inspected the capital homesteads now in the gradual course of erection, convinced himself of the actual benefits of the allotments, or drank the health of his Lordship, with the beautiful demesne spreading out before him in all the combined luxuriance of nature and art—when the visitor, in the full enjoyment of such a scene and such a party, came to reflect upon what brought him there, he would not put down his guinea subscription as badly laid out.

It is not our intention to anticipate the discussion that will follow, in due course, on the use and abuse of allotments. In a private party like this, we must hold even as sacred what was said on the subject; but we do hope to hear again such remarks as those of Mr. Bennett, more particularly. In the speech of the occasion, he strikingly supported, from his experience on the Woburn property, the advantage of what is being so well done at Silsoe. The proper use of allotment land raises the tone of the labourer's character as much as it increases his household comforts. It soars far above the influence of mere charity, and teaches him to depend, as he should, on his own exertions. On Lord de Grey's estates the utmost liberty of action is permitted, so long as the man does fair justice to his holding. He grows wheat, potatoes, or cabbages as it best suits him; and the result is, there is scarcely a taking but is creditably worked. In eight-and-twenty years, says Mr. Bennett, he has not lost eight-and-twenty shillings rent; and no doubt Mr. Trethewy could say as much.

The moral of this visit is a very high one. It is a good sign when the landlords of the country ask a body of *stranger* agriculturists to come and judge of what they are doing. They can reckon only on an independent opinion; and it shows they do not fear it. We hope to see the example set by Lord de Grey followed up by many another such a visitation—either in or out of Bedfordshire.

NORTH LINCOLNSHIRE AGRICULTURAL SOCIETY.

MEETING AT GRANTHAM.

Lincolnshire farmers, though busily reaping in some localities, and with harvest close upon them in others—though disconsolate about their spoilt peas and gloomy-looking bean crop—with turnips moderate on the heath, and bad on the wolds—and the fen-land wheats flattened by storms to a degree unknown for years—yet come up in goodly numbers to their annual holiday, and have this time furnished the best show of stock the county has ever produced.

Wednesday, July 28, was the implement day, when trials of Bentall's, Coleman's, and Archer's Lever-Bentall broadshares and grubbers took place in a piece of barley stubble, on light stony soil, up Spittlegate-hill. In land of this description, Coleman's and Bentall's implements made the best work. Woofe's patent paring-plough, that pares so accurately and effectively an inch deep, on suitable ground, turned up the stony soil very well, but in this situation was considered inferior to the broadsharing scarifiers. Cartwright's chain-harrows showed their ability for collecting couch and rubbish into rolls, and thus saving much hand-raking or picking. In an adjoining turnip field were tried Archer's and Caborn's horse-hoes, and a very simple, ingenious, and efficient revolving turnip-thinner, the bunching-knives rotating nearly horizontally instead of vertically, as in Huckvale's. In the afternoon three reaping-machines were at work in a field of wheat on the other side of the town. The crop was heavy enough to be very much laid, though in no place quite flat, and was pretty clear of weeds. Dray's "Champion," with tipping platform, cut well—a man delivering with great labour the bunches of corn in the rear: the laid portions could only be cut effectually by going one way, so as always to meet the prostrated corn. Burgess and Key's larger machine, with screw platform side swathe delivery, did not cut well, owing, it is said, to some mismanagement; but the stubble left was long and ragged, and the machine could not cut the laid portions more than one way. Crosskill's machine has been improved by the addition of a separate pole for the horses, leaving the steerage-pole at liberty: it cut beautifully, both backwards and forwards, or in any direction, the endless-band delivering and laying the swathe (with the assistance of one man) in an admirable form for gathering into sheaves. The draught appeared rather heavy for the horses. A better test could not have been applied, as far as slanting, twisted, and tangled crops are concerned; and great was the astonishment of the thousands present at the neat and rapid manner in which the reaping (or rather mowing) was accomplished.

In the show-yard a few thrashing-machines were tried, and there were many good assortments of implements, steam-engines, and thrashing-machines, including those of Robey and Scott, Hornsby and Sons, Forster, Ruston, Procter and Burton, and the handy little 2½ horse portables of Messrs. Smith and Ashby of Stamford, and Smith of Sleaford: Bentall, Coleman, Pickslev and Sims, Stanley, and other well known manufacturers had stands; besides numerous local and country firms exhibiting—Samuelson's, Richmond and Chandler's, Ransome's, and Howard's, first-class machinery and implements; Boydell's elegant carriages, etc., of which the list of prizes must be a sufficient report on the present occasion. It is unfortunate that the machinery of several exhibitors was absent, owing to delays by railroad in coming from Chester.

On Thursday a very large number of persons visited the show, including a great many country gentlemen and influential agriculturists, and a most beautiful day shone upon the whole proceedings of a most successful meeting. To appreciate the excellence of the present show, our readers should remember that last year, at Louth, we had the best classes of live-stock ever before collected in the county; the nearly two hundred horses forming the great feature, the short-horns in smaller force, but of better quality than before; the sheep and pigs nothing to boast of, and the poultry a poor show. The prizes amounted to about £305 for live-stock, and £111 for implements. This year there are £520 for stock, and £130 for implements. The stock entries are the largest the Society has had, comprising 88 shorthorns, 83 sheep, 198 horses, 42 pigs, and 95 poultry and pigeons. And, in general, the shorthorns form by far the finest show yet gathered in the county; the horses better than ever, the sheep and pigs a great improvement upon last year, and the poultry not at all to be despised or passed by.

The shorthorn bulls were very grand; Mr. Wetherell coming in this year to bear away the honours from Mr. Dudding. His prize white bull, "Statesman," was highly commended at Chester; and his second-prize roan bull was commended at the same meeting, an animal of great substance and with a splendid chine. Mr. Bland's prize three-year-old bull was highly commended at Chester, and remarkable for his fine forequarters. Mr. Dudding's "Admiral" and Mr. Rollison's roan are both very handsome; and Mr. Dudding's "Lord of the Manor" is a remarkably good animal, with especially good back and flank. The two-year-old bulls were a capital class. Among the yearling bulls, Mr. Dudding's is beautiful in every respect—back, chine, and rib in just the right form, and quality of flesh splendid; Mr. Torr's second-prize yearling is a nice thing, but somewhat heavy in offal compared with the winner. There was a large show of cows, some very good indeed. Mr. Torr's red cow is extraordinary for her back, hips, and touch. Mr. Wetherell's "Venus" is also meritorious. The three-year-old heifers were generally commended, but though Mr. Heneage's were admired, there was a defective forequarter in one heifer shown that damaged the character of the class. The two-year-old heifers were also generally commended, though there were some poor animals in the class. Mr. Wetherell's prize heifer is a real beauty, very compact, with fine head and bone, and splendid quality. Sir Thomas Whichcote's heifer is also extremely good. The large class of yearling heifers comprised a few very good, and also some very ordinary specimens. The she-calves (generally commended) included Mr. Bland's and Mr. Heneage's prize beauties, Mr. Hutton's level, fine, and forward calf, and Mr. Wetherell's beautifully-developed "Stanley Rose." The cottager's cow class was interesting, and certainly there were some capital milkers, and of excellent frame and quality. Among the extra stock Mr. Torr's roan cow and Mr. Wetherell's "Moss Rose" (no less than 15 years old) are worthy of especial mention.

Mr. Abraham, Mr. Charles Clarke, and Mr. Lynn, are the greatest in the classes for rams; Mr. Casswell, of Laughton, showing a few specimens of his famous flock. There were some very poor shearling rams among their betters. Mr. Clarke's first and second prize two-shears were exceedingly good sheep, with good backs, and nice wool. The three-shear rams showed very great size, Mr. Abraham's having particularly good looks. Mr. Abraham's and Captain Grantham's pens of ewes were very level and good; but we noticed some that were very inferior. Captain Grantham's ewes in extra-stock were also much admired.

The show of pigs was saved from mediocrity by the presence of several first-class animals, as those of Mr. Richardson and Mr. Harrison, of Heaton Norris. Mr. Richardson's large-breed boar is of enormous size, very deep, and weighing, it is supposed, some 80 stones imperial; this has taken the first prize against Mr. Harrison's, which was the first prize boar at Chester, a very long, broad, and deeply-formed animal, with beautiful quality of pork. Mr. Harrison's small-breed prize boar is very fine, with capital loin and neck-chine. Mr. Lynn's second-prize boar is exceedingly compact, short, thick, and astonishingly filled out in every point. Mr. Harrisons' large-breed sow is very great and heavy; Mr. Pindar's of enormous size, and suckling nine fine pigs. The small-breed sows are a good class.

The poultry did not form any special attraction in the show; but the Spanish fowls were good, the Cochins very fine, the game classes uncommonly well supported, Hamburghs meritorious; the ducks of nice character, the black East Indians of Sir John Thorold drawing some attention; turkeys, geese, and guinea-fowls very good; and the Dorking cocks, in the additional class, were some of them remarkably fine birds.

The stirring interest of the day (Thursday) was of course the wonderful show of horses; and both in the pastures where the stallions displayed themselves, throughout the stands where hunters, young horses, and mares and foals were placed, and around the hurdled ring in which the Judges inspected one class at a time, and awarded the white and green ribbons, a throng of spectators was congregated during the whole time of the exhibition.

Of *thorough-bred stallions* for getting hunters—*sic*—only two were entered, and the Judges gave the prize to a half-bred horse! Surely this is a mistake, as no man can expect to breed hunters from a cocktail stallion. If the thorough-bred horse "The Danube" was not worthy of a prize it should have been withheld. The draught-horse stallions were an uncommonly fine show. Mr. Hemmant's prize twelve-year-old bay, with black legs, "Thumper," is amazingly powerful, with great symmetry and constitution, but a trifle too plain, and not improved in appearance by a swelled knee. Mr. Barnes's "Blaze" has a fine top, but very heavy about the feet. Mr. Bellair's "Young Britain" is a clever horse, with capital clean legs. Mr. Hill's "Champion" is compact, powerful, with a rare top, shoulders, and loin; but might be better about the legs. We missed Mr. Taylor's Chester second-prize horse from this class, but he was entered. Mr. Andrews's strong trotting-horse, "Fire-away," was by far the best roadster stallion. Mares for breeding hunters were an especially fine class; Mr. J. W. Richardson's, Mr. J. R. Fletcher's, Mr. H. G. Skipworth's, and some others, being of the right sort, and not much behind the famous prize mares of His Grace the Duke of Rutland and Mr. Floyer. There were some extraordinarily fine mares for breeding draught horses; also several good brood mares for roadsters. Among the hunting fillies we did not see anything of very marked merit. The cart fillies showed tolerably well, and there were many uncommonly good foals. In extra stock, Mr. J. H. Fisher's entire cart colt was an exceedingly good one; and Mr. S. H. Harrison's brown mare pony well deserved the distinction of the prize it received. Some famous hunting geldings and fillies were shown in competition for the whips and other prizes offered by Lord Yarborough, Sir John Thorold, and Sir M. J. Cholmondeley — Mr. Abraham's splendid bay gelding by "Sir Peter" beating Mr. Burrows' black by "Ambrose," which won the Farmers' Plate at Croxton. We liked the style and action of Mr. Booth's brown gelding by "Voltigeur;" and Mr. Walker's, Mr. Shipman's, Mr. Thos. Vincent's and others were generally admired. The hunting foals bid fair to come up well, so that we shall have plenty of good stock to show when the old favourites no longer appear.

It is rather bewildering to find animals described more than once in the pages of the catalogue, as in competition for two or three differently-offered prizes—open to the same beast or sheep. Would it not be more convenient, and answer the purpose of the offer, to have prizes for the best animals in any of the classes, instead of a separate class assigned to those competing for the general prizes, after the manner of Birmingham and Baker-street shows?

The dinner was well attended; and, being presided over by Sir John Trollope, who gave the various toasts in his own racy and happy style, was conducted throughout with all the harmony and good spirit that we could wish to see attendant on so successful a meeting.

PRIZES FOR LIVE STOCK.

SHORT-HORNS.

STEWARD.—Robert Martin, Asterby, Horncastle, Lincolnshire.

JUDGES.—J. Parrington, Brandspeth, Durham.
Edmund Lythall, Radford Hall, Leamington.
J. Gamble, Shouldmanthorp, Downham, Norfolk.

Bulls above one year old.

Prize of £20 to — Wetherell, of Aldborough (Statesman).

Highly commended.—R. Dudding's bull (Admiral).

Bulls three years old or upwards.

First prize of £7 to George Bland, of Coleby Hall (Lord Raglan).

Second Prize of £3 to — Wetherell (Lord Scarborough).

Highly commended.— — Rollison's bull.

Bulls two years old.

First Prize of £7 to R. Dudding, of Panton (Beau of Panton).

Second Prize of £3 to R. Dudding (Lord of the Manor).

Yearling Bulls.

First Prize of £8 to R. Dudding (Admiral).

Second Prize of £4 to W. Torr, of Aylesby (Silvertop).

Bull calves.

First Prize of £5 to R. Dudding (Agamemnon).

Second Prize of £3 to George Bland.

Cows more than four years old, having produced a calf within the preceding nine months.

First Prize of £8 to W. Torr (Britannia).

Second Prize of £4 to A. Wildgoose, of Swarby (Brownlow).

Commended.— — Wetherell's cow (Venus).

Heifers three years old, having produced a calf within the preceding nine months.

First Prize of £7 to Geo. F. Heneage, Hainton Hall (Blanche).

Second Prize of £3 to G. F. Heneage, (Duchess).

The class generally commended.

Heifers two years old.

First Prize of £6 to — Wetherell (Ayshire Rose).

Second Prize of £3 to Jos. Brothwell, of Braceby (Alma).

The class generally commended.

Yearling Heifers.

First Prize of £6 to G. F. Heneage, (Blanche 2nd.)

Second Prize of £3 to W. Torr (Grey Dawn).

Heifer calves.

First Prize of £4 to G. Bland.

Second Prize of £2 to G. F. Heneage, (Birthright)

Highly commended.—W. Hutton's calf (Diana).

The class generally commended.

COTTAGERS' PREMIUMS,

Milch cows, having produced a calf within the preceding nine months; the property of cottagers, tenant-occupiers of not more than ten acres, who are getting their living principally as day labourers, or working mechanics.

First Prize of £4 to John Southern, of Sedgebrook.

Second Prize of £2 to Joseph Ireland, of Barrowby.

Yearling heifers, the property of cottagers.

First Prize of £2 to Richard Green, of Barrowby.

SHEEP.

STEWARD.—Wm. Parke, Stragglethorpe, Newark, Notts.

JUDGES.—Robert Fisher, Leckonfield, Beverley, Yorkshire.
John Codling, Whaplade, Holbeach, Lincolnshire.
R. Wood, Osberton, Worksop, Nottinghamshire.

Rams of any age.

Prize of £15 to Charles Clarke, of Scopwick (two shear).

Shearling rams.

First prize of £10 to C. Clarke.

Second prize of £5 to W. Abraham, of Barnet-le-Wold, Brigg.

Third prize of £2 to Robt. Wright, of Nocton Heath.

Two-shear rams.

First prize of £6 to C. Clarke.

Second prize of £3 to C. Clarke.

Three-shear rams.

First prize of £6 to Robert Lynn, of Stroxton, Grantham.

Second prize of £3 to W. Abraham,

Aged rams.

Prize of £6 to W. Abraham,

Pens of ten ewes, having suckled lambs to the 10th of July.

First prize of £7 to Capt. H. V. Grantham, of Sturton.

Second prize of £3 to C. Williams, of Carlton-le-Moorland.

Pens of ten shearling gimmers.

First prize of £6 to W. Abraham.

Second prize of £3 to Capt. Grantham.

Pens of ten she-lambs.

First prize not awarded.

Second prize of £2 to James Drury, of Saxilby.

HORSES.

STEWARD.—Charles Nainby, Barnoldby-le-Beck, Grimsby.

JUDGES.—Thos. Percival, Wandsford, Northamptonshire.
Henry Owston, Bracken Farm, Driffield, Yorkshire.
Henry Lambert, Waulby, Hull, Yorkshire.

Stallions for hunters.

The prize of £15 to Thos. Chambers, of Reasby Hall (Sir Richard).

Stallions for draught horses.

The prize of £15 to John Hemmant, of Thorney Fen (Thumper).

Stallions for roadsters.

The prize of £8 to Thos. Andrew, of Winlebourne (Fireaway).

Mares for breeding hunters, with foals at heel, or having been put to the horse this season.

First prize of £7 to His Grace the Duke of Rutland, of Belvoir Castle.

Second prize of £5 (offered by His Grace the Duke of Rutland), to J. W. Floyer, of Martin House.

Third prize of £3 to J. Baumber, of Somersby.

Mares for breeding draught horses.

First prize of £7 to A. Bradford, of Westborough Lodge.

Second prize of £3 to George Bland, of Coleby Hall.

Mares for breeding roadsters.

Prize of £5 to G. Holmes, of Beverley.

Two-year-old hunting fillies.

Prize of £5 to Wm. Earle Welby, of Denton.

One-year-old hunting filly.

Prize of £4 to Wm. Earle Welby.

Three-year-old cart fillies.

Two-year-old cart filly.

Prize of £4 to S. Fisher, of Whatton.

Yearling cart filly.

Prize of £3 to J. H. Fisher, of Orston.

Cart colt foals.

Prize of £3 to J. Dalby, of Foston.

Cart filly foals.

Three-year-old hunting gelding or filly by a thorough-bred horse.

Whip, value £5 (given by the Earl of Yarborough) to Wm. Abraham (bay gelding by Sir Peter).

Second prize of £4 (given by Sir J. C. Thorold) to George Holmes, of Beverley (brown filly by Maroon).

Hunting geldings or fillies, four years old, by a thorough-bred horse.

Whip, value £5 (given by Sir M. J. Cholmondeley, M.P.) and also the first prize of £5 to J. B. Booth, of Killerby (for brown gelding by Voltigeur).

Second prize of £5 to George Walker, of Bigby (bay gelding by Fernhill).

Two-year-old hunting colts.

Prize of £5 (given by the gentlemen of the Belvoir Hunt) to W. Shaw, of Far Coton (chesnut by The Ugly Buck).

Hunting colts, one-year-old.

Prize of £5 to Richard Bailey, of Eaton (brown by Drayton).

Geldings or mares, calculated to carry 18 stone as hacks, and not exceeding 15 hands in height.

Silver cup, value £5 (given by Sir Edward Brackenbury) to G. Holmes, of Beverley.

Hunting foals by a thorough-bred horse.

Prize of £5 (given by G. F. Heneage, Esq., M.P.) to J. Baumber (black, by Martext).

Foals by "Martext."

Silver cup, value £5 (given by Thos. Grantham) to J. Baumber.

Foals of horse "Young Active."

PIGS.

STEWARD.—William Marriott, Bitchfield, Grantham.

JUDGES.—Robert Fisher.
John Codling.
R. Wood.

Boars of large breed.

First prize of £4 to Thomas Richardson, of Hibaldstow.

Second prize of £2 to John Harrison, jun., of Heaton Norris.

Boars of large breed, not exceeding twelve months old.

Prize of £2 10s. to T. Richardson.

Boars of small breed.

First prize of £4 to James Harrison, jun.

Second prize of £2 to John Lynn, of Stroxton.

Boars of small breed, not exceeding twelve months old.

Prize of £2 10s. to W. S. Owston, of The Barff, Brigg.

Sows of large breed, having had a litter since the 1st March.

First Prize of £4 to J. Harrison, jun.

Second prize of £2 to Thomas Pinder, of Barnaby.

Sows of small breed, having had a litter since the 1st March.

First prize of £4 to H. Watson, Londonthorpe.

Second prize of £2 to William Allatt, of Glinton.

Three breeding pigs, of a large breed.

Prize of £3 to Richard Eminson, of Londonthorpe.

Three breeding pigs, of a small breed.

Prize of £3 to William Allatt.

EXTRA LIVE STOCK.

W. Wetherell, £3, for roan cow (Moss Rose.)

William Torr, £2, for roan cow (Glisten.)

Captain Granthan, £1, for pen of two two-shear ewes.

Captain Grantham, £1, for aged ewe.

Charles Clarke, 10s., for four-shear ewe.

C. & E. Marfleet, of Bassingham, 10s., for pen of two ewes.

W. Bramley, of Amcotts, 10s., for entire cart colt.

S. H. Harrison, of Grantham, 5s., for mare pony.

Sir Thomas Whichcote, of Asnearley, £1, for fat pig.

PRIZES FOR IMPLEMENTS.

STEWARDS.

Wm. Torr, of Aylesby, Grimsby.
Robt. Wyles, of Little Ponton, Grantham.

JUDGES.

Wm. Lister, of Dunsa Bank, Richmond, Yorkshire.
Wm. Chatterton, of Tathwell, Louth, Lincolnshire.
David Martin, of Wainfleet, Boston, Lincolnshire.

For the best portable thrashing machine—£10 (given by the Earl of Yarborough, President), to Mr. J. Coultas, jun., of Grantham.

For the best reaper—[£10 prize withheld].

For the best plough for light land—£3 to Mr. H. Archer, of Barrowby; £1 to Mrs. Pearson, of Barrowby.

For the best plough for loamy land—£3 to Mr. J. Cooke, of Lincoln; £1 to Mrs. Pearson.

For the best subsoil plough—£2 to Mr. E. H. Bentall, of Heybridge, Essex. [£1 not awarded.]

For the best drag-cultivator—£3 to Messrs. Coleman and Sons, of Chelmsford; £1 to Mr. E. H. Bentall.

For the best scarifier or stubble-paring plough—£3 to Messrs. Coleman; £1 to Mr. E. H. Bentall.

For the best drill for general purposes—£5 to Mr. J. Coultas, jun. [£2 not awarded.]

For the best ridge drill—£2 to Mr. J. Coultas, jun. [£1 not awarded.]

For the best liquid manure drill—£2 to Mr. W. Watkinson, of Louth; £1 to Mr. W. Watkinson.

For the best horse hoe for corn—[prize withheld.]

For the best horse-hoe for turnips—£1 to Mr. W. Smith, of Kettering.

For the best grubber—£2 to Mr. Wm. Torr, of Aylesby; £1 to Mr. E. H. Bentall.

For the best set of harrows for light land—£2 to Messrs. Coultas and Son, of Little Grimsby, Grantham; £1 to Mr. Wm. Pacey of Newark.

For the best set of harrows for heavy land—£2 to Mr. E. H. Bentall; £1 to Messrs. Coultas and Son.

For the best twitch rake—£2 to Messrs. Coultas and Son.

For the best waggon for general purposes—£3 to Messrs. Hayes and Son, of Stamford; £1 to Messrs. Ross and Lewin, of Ropsley.

For the best two-horse cart—£2 to Messrs. Hayes and Son.

For the best one-horse cart—£2 to Messrs. Hayes and Son.

For the best clod-crusher—£2, and an extra prize of £1 10s., to Mr. G. W. Robinson, of Barton-on-Humber.

For the best roller for general purposes—£2 to Messrs. Coultas and Son.

For the best dressing machine—£3 to Mr. Kittmer, of Fulston, Louth; £1 to Mr. C. Revill, of Lincoln.

For the best corn-blower—£2 to Mr. T. Simpson, of Lincoln.

For the best chaff-cutter—£3 to Messrs. Rogers, of Grantham; £1 to Messrs. Smith and Ashby, of Stamford.

For the best turnip-cutter—Prizes divided between Coultas and Son and Mr. Rogers.

For the best cake-breaker—£1 to Mr. E. H. Bentall.

For the best and most economical general mill for crushing agricultural produce—Prizes divided between Coultas and Son and Mr. Rogers.

For the best and most economical steaming apparatus for general purposes—£2 to Mr. Simpson.

For the best set of waggon harness for four horses, cost to be taken into consideration—£2 to Mr. Sandall, of Lincoln.

For the best collection of hand tools—No entry.

IMPLEMENTS NOT ENUMERATED.

For stand—£1 to Mr. H. Archer.

For Woofe's paring-plough—£2 to Mr. H. Archer.

For Kent pulper—£10s. to Mr. E. H. Bentall.

For stand—10s. to Mr. Bridges, of 409, Oxford-street, London.

For stand—£2 to Mr. J. Caborn, of Denton, Grantham.

For potato digger—10s. to Messrs. Coleman and Sons.

For hand sack-lifter and iron sack-barrow—10s. to Mr. Green, of Lincoln.

For Cambridge roller—£1 to Mr. W. Hart, of Brigg.

For hay forks—10s. to Mr. J. Hodgson, of Louth.

For stand—10s. to Mr. C. Inman, of West Ashby, Horncastle.

For liquid manure distributor—£2 to Mr. J. James, of Cheltenham.

For stand—£2 to Mr. J. Luck, of Spalding.

For stand—£2 to Mr. R. Mason, of Alford.

For rotary corn screen and riddle—£3 to Mr. Wm. Mitton, of Lincoln.

For lawn-mowing machine and horse works—£2 to Messrs. Picksley and Sims, of Leigh, Manchester.

For self-rolling mangle, Flavel's kitchener, and stand—£2 to Messrs. Rogers, of Grantham.

For portable sawing bench with adjusting crane—£2 to Messrs. Ruston, Proctor and Co., of Lincoln.

For Boby's corn screen—10s. to Mr. T. Simpson, of Lincoln.

For haymaking machine—£1 to Messrs. Smith and Ashby, of Stamford.

For pipe and tile machine—£1 to Mr. W. Watkinson, o Louth.

VERMIN RIDDANCE.—Half an ounce of soap boiled in a pint of water, and put on with a brush while boiling hot, infallibly destroys the bugs and their eggs. Flies are driven out of a room by hanging up a bunch of the plantain or fleawort plant after it has been dipped in milk. Rats and mice speedily disappear by mixing equal quantities of strong cheese and powdered squills. They devour this mixture with greediness, while it is innocuous to man. When it is remembered how many persons have lost their lives by swallowing in mistake mixtures of strychnine, ratsbane, corrosive sublimate, &c., which are commonly employed for this purpose, it becomes a matter of humanity to publish these items.—*Hall's Medical Journal.*

SELBY, TADCASTER, AND MARKET WEIGHTON AGRICULTURAL ASSOCIATION.

On Wednesday, July 28, this flourishing society helds its fifth meeting, which was highly successful. The amount of money offered by the society in prizes was about 350*l.*, Lord Londesborough, the president of the society, having, in addition, offered a silver tankard, to be competed for by his Yorkshire tenantry, for the best lot of six shorthorned steers and heifers. The entries of stock exceeded 500, which was an increase upon the show at Tadcaster, in 1855, and about the same as at the exhibition of the society last year. There was an excellent collection of stock of all descriptions, the only falling off being among the poultry, in which department there does not appear to be the mania which existed a year or two ago. The horses, hunters especially, were very superior, as also the cattle and sheep. The aggregation of implements was much better than at any previous show, one exhibitor alone having 80 entries. The following figures will show the respective number of entries in several of the departments: Shorthorned cattle, 72; sheep, 49; pigs, 25; horses, 240; extra stock, 51; special prizes, 5. The greatest novelty was Fowler's steam plough, which was exhibited in a field near the show-yard, in the occupation of C. Shann, Esq. The plough commenced working at six o'clock in the morning, and continued in operation during the greater part of the day, to the gratification of a large number of agriculturists.

The following is the award of the judges:

JUDGES OF SHORTHORNS, SHEEP, AND PIGS.

Mr. William Bartholomew, Goltho, Lincolnshire; Mr. Thos. Dodds, Watkinson Hall, Ovenden; Mr. John Holliday, Barmston, Lowthorpe, Hull.

SHORTHORNED CATTLE.

Best bull of any age, 10*l.*, Thomas Barber, Sproatley, Hull; second ditto, Rev. R. Brooke, Selby.

Best cow of any age, in-calf or milk, 5*l.*, John R. Middlesborough, South Milford.

Best bull of any age, 5*l.*, Charles Wright, Oglethorpe; second ditto, 2*l.*, Henry Smith, Drax Abbey, Selby.

Best bull under two years old, 5*l.*, Hy. Smith, Drax Abbey, Selby; second ditto, 2*l.*, John Wells, Booth Ferry.

Best cow of any age, in-calf or milk, 5*l.*, John Wells, Booth Ferry; second ditto, 2*l.*, Thomas Hill, Wetherby.

Best three-years-old cow, in-calf or milk, 3*l.*, J. R. Middlesborough; second ditto, 1*l.*, Thomas L. Bickers, Tadcaster.

Best two-year-old heifer for breeding, 3*l.*, John R. Middlesborough, South Milford; second ditto, 1*l.*, Charles Wright, Oglethorpe.

Best yearling heifer, 3*l.*, John R. Middlesborough, South Milford; second ditto, 1*l.*, John Wright, Oxton.

Best pair of two-year-old steers, 2*l.*, Thomas Robinson, Wingate Hill; second ditto, 1*l.*, Thomas L. Bickers, Tadcaster.

CATTLE OF ANY BREED.

Best cow for dairy purposes, £3, John Rishworth, Tadcaster; second ditto, £2, John R. Middlesborough, South Milford.

LONG-WOOLLED SHEEP.

Best shearling ram, £5, William Walker, Goldsbro'; second ditto, £2, George W. Langdale, Leckonfield Park, Beverley.

Best aged ram, £5, William Angus Bainton, Driffield; second ditto, £2, Joseph Simpson, Spofforth Park.

Best pen of three shearling rams, £7, George W. Langdale, Leckonfield Park, Beverley; second ditto, £3, William Angus, Bainton, Driffield.

Best pen of five breeding ewes, £5, Wm. Walker, Goldsbro'; second ditto, £2, Joseph Simpson, Spofforth Park.

Best pen of five shearling gimmers, £5, Messrs. Mitchell, Market Weighton; second ditto, £2, Messrs. Mitchell.

Best pen of five shearling wethers, £5, John Boast, Market Weighton; second ditto, £2, Thomas Marshall, Pocklington.

Best pen of five shearling wethers of any breed or cross, £3, Matth. Stephenson, Beverley.

PIGS.

Best boar, large breed, John Webster, Shipton, Market' Weighton; second ditto, £1, John Boast, North Dalton' Market Weighton.

Best sow, large breed, in pig or milk, £3, Geo. Bell, Stutton Tadcaster; second ditto £1, Wm. Banks, Stainer Hall.

Best boar, small breed, £3, R. Lawley, Hutton, second ditto, £1, W. T. Markham, Becca.

Best sow, small breed, in pig or milk, £3, Geo. Hutchinson, Prospect House, York; second ditto, £1, Geo. Hutchinson.

Best cottager's store pig, £2, James Grimston, Tadcaster; second ditto, £1, William Vollans, jun., Selby.

Best store pig, £2, Thomas Scott, Warter, Market Weighton; second ditto, £1, William Hill, Wetherby.

JUDGES OF HORSES.

Mr. John Ashton, Owmby-house, Brigg, Lincolnshire; Mr. John Woffindin, Norton, Malton; Mr. John Johnson, Brigham, Driffield.

HORSES.

Best thorough-bred stallion for hunters, £5, Francis M'Intosh, Barwick-in-Elmet; second ditto, £2, W. Brigham, Beverley.

Best stallion for coaching purposes, £5, Joseph Sergison, Holme-on-Spalding Moor; second ditto, £2, Wm. Burton, Marton Hall.

Best stallion for roadster, £5, John Long; second ditto, £2, R. B. Ridsdale, Watergate, Ripley.

Best stallion for agricultural purposes, £5, D. R. Askham, Howden; second ditto, £2, Thomas Tipling, North Deighton.

Best hunting brood mare and foal, £3, John Smallwood, Askham; second ditto, £1, Henry Lambert, Wauldby, Welton.

Best hunter not exceeding eight years old, £5, John Tomlinson, Wighill; second ditto, £2, W. A. Usher, Middlethorpe.

Best coaching brood mare and foal, £3, James Godsman, North Milford; second ditto, £1, John Wells, Selby.

Best roadster brood mare and foal, £3, Francis Rickell, Warter, Market Weighton; second ditto £1, Mr. Powell, Ulleskelf.

Best brood mare for agricultural purposes and foal, £3, J. Jewitt, Brackenholme; second ditto, £1, John Skirrow, Addlethorpe.

Best three-year-old hunting gelding, £5, George Hall, Brainton Inn, Great Driffield; second ditto, £2, John McTurk, Skelton Grange.

Best three-year-old hunting filly, £3, Rev. W. V. Harcourt, Bolton Percy, Tadcaster; second ditto, £1, Samuel Wormald, Cawood.

Best two-year-old hunting gelding, £3, John Long; second ditto, £1, Wm. Makin, Burton Salmon.

Best two-year-old hunting filly, £3 Messrs. Mitchell, Market Weighton; second ditto, £1, Messrs. Appleyard, Whistow Lordship.

Best three-year-old coaching gelding, £5, Messrs. Appleyard, Whistow Lordship; second ditto, £2, Lord Londesborough, Grimston.

Best three-year-old coaching filly, £3, Goerge Holmes, Beverley; second ditto, £1, Michael Coulsen.

Best two-year-old coaching gelding, £3, John Grace, Fairburn; second ditto, £1, W. K. Goodbarne, Tadcaster.

Best two-year-old coaching filly, £2, Joseph Lathum, York; second ditto, £1, James Foster, Wistow.

Best three-year-old roadster gelding, £3, John Long, Selby.

Best three-year-old roadster filly, £3, Joseph Bell; second ditto, £1, John Long.

Best two-year-old roadster gelding, £3, T. Acomb, Poppleton; second ditto, £1, W. K. Goodbarne, Tadcaster.

Best two-year-old roadster filly, £2, John Atkinson, Hazlewood.

Best roadster nag, or mare, of any age, £5, Henry Bowser, Market Weighton: second ditto, £2, Messrs. Consitt, Market Weighton.

Best pony not exceeding fourteen hands, of any age, £3, Charles Croskell, York; second ditto, £1, John Wells, Selby.

Best pair of horses, of either sex, for agricultural purposes, worked during the season, £5, Wm. Angus, Bainton: second ditto, £2, T. Acomb, Poppleton.

Best three years old agricultural gelding, £3, Thomas Upton, Pallathorpe; second ditto, £1, W. S. Clough, Eccup.

Best three years old agricultural filly, £2, Thomas Acomb, Poppleton; second ditto, £1, W. Proude, Thornbill.

Best two years old agricultural gelding, £3, W. K. Goodbarne, Tadcaster; second ditto, £1, W. Houseman, Tadcaster.

Best two years old agricultural filly, £2, T. Acomb, Poppleton; second ditto, J. Tennant, Keightley, Burton.

Best three years old agricultural filly, £2, R. Stoker, Ryther; second ditto, £1, ditto.

EXTRA STOCK.

SHORT-HORNED CATTLE.

Best, Lord Londesborough; second ditto, Lord Londesborough.

PIGS.

Best and second ditto, George Hutchinson, Prospect House, York.

HORSES.

Best and second ditto, J. Ramsdale, Holm-upon-Spalding Moor, for entire coaching colt.

SHEEP.

Henry Bowser, Market Weighton, one fat wether, first; Simpson Staveley, Tebthorpe, Driffield, fat ewe, second.

CATTLE.

Best lot of six shorthorned steers and heifers, not exceeding two years old, silver tankard, given by the Right Hon. Lord Londesborough, and competed for by his tenantry in any part of Yorkshire, Henry Hutchinson, Flaxley Lodge.

JUDGES OF MACHINERY.

Mr. James Godsman, North Milford, Tadcaster; Mr. Robt. Smith, Selby: Mr. B. Nicholson, Sturton Grange, Garforth, Leeds.

IMPLEMENTS.

Wm. Liversedge, Selby, £5, for the best assortment of implements, and £3 for the best implement of any kind, Davy Brothers portable steam engine.

Nicholas Gascoigne, Wetherby, £2, for the best turnip cutter.

William Walker, Victoria Foundry, York, £1, for collection of cooking-ranges.

W. Sawney, Beverley, £2, for the best winnowing machine.

Isaac Tyson, Selby, £2, for combined thrashing and double winnowing machine, to thrash, shake the straw, riddle, horne barley, and winnow, complete for market; 10s. for patent mill for grinding grain into fine meal; and 10s. for tooth horse rake.

Robert Blades, Tadcaster, 10s., for eleven-coulter drill, with front steerage.

John Barker, Dunnington, York, £2, for the best scarifier.

Henry Marshall, George-street, York, 10s., for Cambridge roller, with improved drill attached.

William Barker, Dunnington, York, 10s., for scuffler.

William Gelder, of North Cave, near Market Weighton, £1 10s., for waggon.

George Hunter, Ulceby, 10s., for four-horse hoe or scuffler, for working between the rows of green crops.

Daniel Harland, of Osbaldwick, near York, £2, for the best cart for agricultural purposes.

John Robinson, of Mark-lane, Leeds, 10s., for root pulper.

Richard Saunders, North Cave, Brough, 10s., for collection of implements.

John Paver, South Milford, 10s., for wheeled light wherry or waggon upon patent axles, fitted with break to ease horses going down hills.

William Steele, Market Weighton, 10s., for wheeled plough.

The day was beautiful and fine, and, attracted by the beautiful weather and by the cheap trains which the North Eastern Company ran, large numbers of people from the district visited the show.

THE OVER-FEEDING OF SHOW STOCK.

Sir,—I have read with much interest your able remarks on the Chester Show, more particularly such as relate to the shorthorn portion of the live stock, where you boldly express your opinion respecting the merits of different animals, regardless whether they were noticed by the judges or otherwise.

You will agree with me, Sir, that the best shorthorn bull in the world is of no value as a bull if he will not serve cows, and get them in-calf. But to have been a successful exhibitor at the shows of the Royal Agricultural Society for the last few years, a bull must have been fed to this diseased state.

Most frequenters of the show-yard recollect that first-class bull "John o'Groat," at the Salisbury show; how he suffered in the yard, and died a short time afterwards, whilst yet a young bull. The case of "John o'Groat" is that of many other bulls. Not probably fed to the extreme pitch he was, but fed so that they are useless to put to cows, and either have to be "wasted" for a twelvemonth, or they are kept as "show bulls," and are sent abroad or quietly slaughtered when they have won all the prizes they can.

The Council of the Royal Agricultural Society will greatly increase the practical value of these exhibitions, by selecting as judges gentlemen who can rightly distinguish between an animal whose form is heavily covered with flesh, hiding his faults, and regardless of his utility and working-power, and one which is in a natural state, is a really good animal without disguise, and can serve cows.

At the Chester show we have noticed a move in the right direction. In yearling bulls, more particularly, many fat well-got-up animals were passed by the judges, whose owners had considered them tolerably safe for a prize. Lord Hill's "Hetman" and Mr. Marjoribank's "Great Mogul" were neither of them over-fed, and showed all their defects. Both bulls have been in full work—many cows and heifers, we were assured, being in-calf to each of them—and yet they beat far more highly-fed competitors.

Sir, encourage such decisions; give them your able and staunch support. Forgive even a mistake in the award of a prize to a *poor* bull, as many a mistake is made in an over-fed animal.

Yours faithfully,

A Foe to Fat Bulls.

MR. SANDAY'S ANNUAL LETTING OF LEICESTER SHEEP, AT HOLME PIERREPONT.

The last Wednesday in July being the annual day of letting for the Leicester rams at Holme Pierrepont, by Mr. Strafford, brought together some of the most experienced and noted flockmasters of the kingdom as spectators and purchasers. We have previously had occasion to speak of Mr. Sanday as a most distinguished breeder, and the present event equalled, if not eclipsed, all his previous efforts; for never were there more universal commendations of the quality and strength of the show. Prizes had been carried off by many of the rams shown, at various high-class exhibitions; and few, if any, of the sires and dams of those here had not been highly prized. The letting, therefore, was eminently successful, the bidding being animated and determined throughout; in fact, we heard it declared on the ground that it was the finest lot of reared stock of the season. The letting took place, as usual, in the farmyard of the proprietor, where there was a very large and influential assembly of well-known agriculturists, among whom the following were pointed out to us, viz.:—J. Buckley, Esq., Normanton; — Fisher, Orston; — Woods, bailiff to G. S. Foljambe, Esq., Osberton; Chas. Bosworth, Dishley; G. Turner, Barton, near Exeter; R. Meade, Ireland; — Hole, Knowle House, Dunster, Somerset; T. Stone, Barrow; George Thunder, Ireland; G, Mann, Spaldwick, Huntingdonshire; — Wood, Stanwick Park, Darlington; — Briscoe, Ireland; William Torr, Aylesby Manor, Grimsby; — Stokes, Kingston (one of the judges at the Chester Show); J. Wedge, Fernehill, Newport, Salop; — Field, bailiff to H. P. Sherbrooke, Esq.; — Morley, Wollaton; — Singleton, Givendale, Pocklington; — Garde, Ireland; — Hurlstone, Warwickshire; E. Pawlett, Beeston, near Biggleswade, Bedfordshire; — Abraham, Barnetby; John Shaw, Huntsbury-hill, Northamptonshire; J. Hall, Scorboro'; — Biddle, Warwickshire; — Turner, Ireland; — Doig; Col. Pennant's agent, of Penryn Castle, North Wales; — Dormer; Colonel Inge's agent; the agent of Lord Middleton; and Messrs. Sellars, Simpkin, Corner, Bird, S. Spencer, Stamper (Nonington), Twitchell, Station, Walesby, and Lythall (Warwickshire).

The day was exceedingly fine, and facilitated the proceedings. The sheep were individually brought into a ring prepared for the purpose by the shepherd, and the bidders began immediately to call. The auctioneer (Mr. Strafford, of Euston Square) disposed of the large number of 52 sheep, there being 58 introduced, and the remaining six might have been sold, but Mr. Sanday begged him not to dwell. The warning glass did not "stand" in any case. Among the shearlings the average amount fetched was £22 8s.; of the three-shears, £35 17s. 1d.; the two-shears, £23 2s. We believe several were afterwards let by private contract. The dinner was served up in the heretofore excellent manner by Mr. John Mee, and the worthy host personally welcomed his guests to the board. It is but just to say that every arrangement which forethought could suggest, was adopted for the convenience of the numerous visitors, as well in the house as the hostelry and yard.

The prices realized, and to whom let, were as follows:

SHEARLINGS.

No. 1.—By G. N., dam by Y., Mr. Sellers, 12 gs.
No. 2.—By C. S., dam a Buckley Ewe, Col. Inge, 12 gs.
No. 3.—By G. N., dam by Y., Mr. Ormond, 16 gs.
No. 4.—By C. S., dam by H., Mr. Dormer, 14 gs.
No. 6.—By G., dam by L. N., Mr. Burdett, 17 gs.
No. 7.—By C. S., dam by G. W., Mr. Hall, 25 gs.
No. 8.—By D. W., dam by A. W., Mr. R. W. Meade, 31 gs.
No. 9.—By D. W., dam by No. 1, Mr. Abraham, 11 gs.
No. 10.—By D. W., dam by L. S., Mr. Wood, 24 gs.
No. 11.—By C. S., dam by W., Mr. Ormond, 16 gs.
No. 12.—By C. S., dam by G. W., Col. Pennant, 17 gs.
No. 13.—By C. S., dam by D. N., Mr. Ormond, 18 gs.
No. 14.—By C. S., dam by W., Mr. Buckley, 16 gs.
No. 15.—By C. S., dam by M. U., Mr. Turner, 38 gs.
No. 16.—By G. N., dam by No. 3, Mr. Hall, 16 gs.
No. 17.—By G. N., dam by D. U., Mr. Thunder, 12 gs.
No. 18.—By G. N., dam by W. H., Mr. Biddle, 20 gs.
No. 19.—By G. N., dam by D. U., Wedge, 27 gs.
No. 20.—By G. N., dam by D. U., Mr. Hall, 37 gs.
No. 21.—By G. N., dam by L., Mr. Shaw, 17 gs.
No. 22.—By G. N., dam by D. N., Mr. Wood, 18 gs.
No. 23.—By G. S., dam by Y. H., Mr. Hole, 40 gs.
No. 24.—By G. N., dam a Buckley Ewe, Mr. Thunder, 43 gs.
No. 25.—By G. N., dam by L. S., Mr. Wedge, 20 gs.

TWO SHEARS.

No. 1.—By G., dam by H., Colonel Pennant, 16 gs.
No. 2.—By L. Y., dam by H., Lord Middleton, 17 gs.
No. 3.—By C. S., dam by H., Mr. Hole, 28 gs.
No. 4.—By C. S., dam by H. Hewitt, Mr. Bird, 30 gs.
No. 5.—By G., dam by A. Y., Colonel Pennant, 20 gs.
No. 6.—By G., dam by Hewitt. Mr. Hall, 27 gs.
No. 7.—By C. S., dam by No. 3, Colonel Pennant, 16 gs.
No. 8.—By G., dam by D. D., Mr. Shaw, 40 gs.
No. 9.—By G., dam by L., Mr. Corner, 52 gs.
No. 11.—By M. U., dam by Y., Mr. Briscoe, 29 gs.
No. 12.—By M. U., dam by D. H., Mr. Garde, 40 gs.
No. 13.—By W. H., dam by Y. H., Mr. Hall, 71 gs.
No. 14.—By C. S., dam by D. N., Hewitt, Mr. Simpkins, 52 gs.
No. 15.—By G., dam by D. N., Mr. Hall, 55 gs.

THREE SHEARS.

No. 1.—By G., dam by No. 3, Mr. Stokes, 14 gs.
No. 2.—By A. Y., dam by L., Mr. Twitchell, 11 gs.
No. 3.—By A. Y., dam by W., Mr. Woods, 20 gs.
No. 4.—By G., dam by D. N., Mr. Lythall, 20 gs.
No. 5.—By A. Y., dam by D. N., Mr. Sellers, 13 gs.
No. 6.—By M. U., dam by No. 3, Mr. Hurlestone, 20 gs.
No. 7.—By D. Y., dam by Y., Colonel Inge, 21 gs.
No. 8.—By M. U., dam by Y., Mr. Stamper, 28 gs.
No. 9.—By G., dam by No. 3, Mr. S. Spencer, 57 gs.
No. 10.—By G., dam by G. D., Mr. Wedge, 16 gs.

FOUR SHEARS.

No. 3.—By A. Y., dam by D. G., Mr. Wedge, 10 gs.
No. 4.—By W. H., dam a Buckley, Mr. Torr, 26 gs.

FIVE SHEARS.

No. 2.—By S. L., dam by D., Mr. Walesby, 10 gs.
No. 3.—By S. L., dam by D. D., Mr. Staton, 14 gs.

The general average of the letting may be set down as near upon £26 each.

Many persons availed themselves of the opportunity of inspecting the excellent arrangements to be seen everywhere on Mr. Sanday's good old English homestead. Particular notice was taken of six young pure-bred shorthorned bulls, for sale, viz., Lord Lincoln, roan, calved January 8th, 1857; Sunbeam, white, calved June 12th, 1857; Commonwealth, red and white, calved June 11th, 1857; Thesis, roan, calved October, 26th, 1857; Annandale, red and white, calved Feb. 28th, 1858; and Festus, roan, calved March 16, 1858.—Notts. Guardian.

SUMMER FALLOWS IN SUSSEX.

Sir, —I live in rather a benighted part of Sussex, where good farming is the exception, not the rule. But I must give due credit to the manner in which the hops are cultivated generally; and it is to the attention and expense bestowed on this uncertain crop that may be attributed the want of success in the management of other crops. And now that hops are of no value in the market, our Sussex farmers are in an unpleasant predicament, the end of which it is impossible to foresee; but, like the potato murrain in Ireland, it may in time lead to an improvement in Sussex farming; and it is now the period for those who have dived deeper than their neighbours into the arcana of agriculture, to bestir themselves, and endeavour to bring about a more satisfactory state of things. It is for this purpose that I am anxious to draw attention to summer fallowing, a practice that has become almost obsolete in other parts of this country. In my neighbourhood the land consists chiefly of heavy undrained clay, stated by the uninitiated to be impervious; this is broken up into slices, the size of John Bull himself, by four elephantine horses, tandem fashion, consolidating the subsoil; which, instead of being a pulverized receptacle for the roots of plants, is made more like a turnpike-road, on the principle probably of a solid bottom being beneficial for the wheat crop.

The only reason I can assert for our farmers persisting in the expensive and losing system of summer fallows is, that they are ignorant of a better method; probably not knowing that a growing crop robs and extracts treasures from every breath of air that passes over their land; the leaves absorbing and laying up in the plants solid matter from the atmosphere, and in a much greater degree than is commonly supposed. I cannot in this place go into the actual amount of solids per acre; but in an example I am about to give it will cover the expense of all manures, both for the fallow crop and the following wheat crop, the labour of six or seven horse-hoeings and deep stirrings, rent, and taxes included, and I make out something for the pocket besides. But if the above expenses are paid for by the fallow crop, instead of being at a great outlay, and only arriving at the same ends at last, I consider myself amply remunerated.

To the enlightened and wealthy farmer I am not writing to convey instruction; but our unlearned and poorer brethren, tillers of the Sussex clay, I could wish in a more prosperous condition. I have made some converts to my plan (not a new one), who, now that they have found it answer, are carrying it out with increasing vigour; but the Sussex farmers are slow to learn, so that it was necessary to send out teachers in the first instance. This I find not only an expensive plan, but one not likely to extend beyond certain limits; I have, therefore, accepted the offer of the editor of this widely spread journal, through its means to publish my views (wherever this darkness exists) to the remotest parts of this land. I have lately, viz., in October last, taken into my own hands a small farm; the tenant of which, to speak in mild terms, did not pay that attention to the eradication of weeds that was compatible with profitable and satisfactory farming. I will take, for example, a field of five acres, which for foulness, to speak in rather strong terms, it would be difficult to equal. Imagine a stiff wet clay crowded with twitch, thistles, coltsfoot, charlock, dock, and such like. A summer fallow was the only way of farming land of this description—a certain and great expense, an uncertain gain. This neither agreed with my pocket nor ideas of economy as taught by nature, so I determined to adopt my own plan; and, much to the astonishment of the intelligent farmers with whom I am surrounded, deviated altogether from established custom.

In November I ploughed this field, leaving it till the middle of February to the action of the winter's frosts, when I harrowed it once, to level it slightly for the implement with which I *plant* my seeds. I then dibbled beans with the hand-planter—an instrument not dependent on human caprice. The one I used was a four-depositor, arranged thus: two at one end six inches apart, then an interval of 26 inches, and another double row six inches apart. From experience I should recommend that beans be always planted at these distances.

Some persons have an idea that the broadcast method for beans produces most plants and the heaviest crops; but this is not the case, and the injury done to the land is incalculable. I will give two instances of these methods lately practised close to me, and one by myself. The first is a broadcast crop of beans, adjoining the field on which I am carrying out the experiment above alluded to; it was sown broadcast at about three bushels to the acre, the land being in a very foul state, and full of grub, as was also my own field. The plants appeared, only to disappear again, and what were left were overgrown by weeds. Part was ploughed up; the remainder hoed twice by hand not one inch deep, at an expense of 12s. per acre for each hoeing. I walked over the field yesterday; it was covered with twitch or couch. The owner is called rather a clever man for these parts. I will now take you into the five-acre piece: here is a field of luxuriant beans in rows, with hardly a miss, and the land as clean as a garden, the grub twisted and turned about, not giving them time to commit much damage, and the expense of cleaning not greatly exceeding the one hand-hoeing of my neighbour's field; the promise of crop three sacks to the acre more, and the depth of hoeing and stirring, not one inch, but six and seven. The wide intervals of this crop have been hoed six times by horse-power, at an expense of 1s. 6d. per acre, a deeper season being obtained at each operation, the final one being the earthing-up process. This I effect by a very simple implement, invented here to carry out my plan. In Sussex we have a compact little implement called a break, expanding to different widths; this is much used amongst the hops, and it is a useful article for other purposes. We take out the five hoeing and stirring shears, and in their place substitute a breast-plough, formed of two sheet-iron wings capable of boring furrows of different widths; it fits into the frame of the cultivator, and as it is complete in itself, it can be shifted with ease, and no part is liable to be lost or get out of order; this I use for various purposes. This implement is manufactured by Mr. C. Powell, of Hurst Green. I earth up all my beans, throwing the fine soil into the double rows, where it meets the earth of the next row. This I find makes a very good finish to the work, for it buries any weeds in the double rows that may have grown since the last hand-hoeing of these double rows, the sharp under-edges of the wings of this moulding plough shaving off any weeds that may have grown in the wider intervals. I set all my beans in the double rows 6 in. by 6, in a richer land probably 6 in. by 7, or even 6 in. by 8; here I have an opportunity for using a narrow hand-hoe, and picking out every weed, which I could not do if I used a drill. My men plant an acre a day each, and the work is executed in an efficient manner, every bean being firmly pressed in at a proper depth. I plant two bushels to each acre, never allowing less than two beans to be planted in each hole; for I find the same thing holds good with beans as I have formerly stated in my opinion about the seeding of wheat—that is, that if we only plant one bean in a hole, one or more laterals will be produced on the main stem, on which at harvest will be found small unripe pods and undeveloped shrivelled seed. In the case of wheat, I never plant less than five or six seeds in each hole, which at 9 in. by 9, averages about half a bushel to the acre. I even increase these up to eight or nine seeds in each hole as the season advances. I do this to get three or four stems to each plant, so as to prevent the formation of laterals in spring. I have always found that by this method I get large flat shoots with stout stems before winter, covering the land, and rendered almost independent of any enemies. The third instance of bean-growing is that of another farmer near me. He was sowing a field of 10 acres broadcast; by a little encouragement he was induced to allow me to send a man to plant an acre. At my request, he has just sent in his report (July 8th): "I shall get two sacks to the acre more where the beans were planted than where sown broadcast; the pores are larger, the seed more developed; my land has been thoroughly cleaned by horse-power at a trifling expense. I shall never adopt any other method." I supply all organic manure which the bean crop would extract, my sheet-anchor being rape cake dust, harrowed in immediately before the crop; about two months afterwards guano, old wood ashes, and a small quantity of superphosphate of lime; the inorganics suited for the wheat crop are not extracted by the beans. Every expense is paid up to the time of the wheat plant appearing by the produce of the fallow crop alone. SIGMA.

HARVEST DRINKS.

SIR,—Last year you were good enough to insert a letter from me, calling attention to the advantage of abandoning the use of malt liquor and cider in harvest, and at other times, and promising to acquaint you with the results of an inquiry I was making as to the experience of others on this subject.

My neglect and procrastination has been such that I find another harvest is already here, and I have made but a feeble attempt at what I had hoped to have accomplished. I still intend to send it you, if you will accept it, with further particulars furnished to me by farmers of much greater experience than myself; in the meantime I may be allowed to state that I am already in possession of a large number of letters from persons in all parts of the country to whom I had addressed inquiries. I find in them a unanimous testimony to the fact that, when no intoxicating drinks are used, more work can be done, and done in a better manner; and the men perform their labour with greater ease to themselves, especially in hot weather, suffer less from thirst and fatigue, enjoy more refreshing sleep at night, find themselves more lively and vigorous in the morning, and have a better appetite for their food. The last point is very noticeable and very important, as no one will deny that solid food is the best foundation for real strength. It has often been observed that coffee-drinkers have been enjoying a good breakfast before their work, while beer-drinkers have been lounging about with empty bottles, unable to eat anything, and only wishing a renewed supply of the stimulant. In addition to all this, there may be noticed among the men a great increase of good temper, kindliness, and cheerfulness, and a great decrease of anger, quarrelling, and especially of bad language, to say nothing of the avoidance of accidents.

Now to any of your readers who may be inclined to question the correctness of these facts, permit me to say, that my informants are persons in all stations in life, from the landed proprietor down to the small cottage farmer, and even the labourer himself; and I submit that they are competent judges, inasmuch as they have tried both ways, and therefore have an evident advantage over those who cling with blind perseverance to the old-fashioned practices of our grandfathers.

The substitutes I find recommended are various—tea, coffee, milk, ginger-beer, milk-and-water, oatmeal and water, and cocoa: the last in the soluble form is particularly convenient in some cases. Pure cold water is highly recommended by some, but the general feeling is against it. The mode of supplying these beverages to the men is various, and depends greatly on circumstances. They are in some cases furnished by the farmer, and in others provided by the men themselves.

As to the pecuniary side of the subject, it will be found there is a saving by the use of any of these substitutes for malt liquor; and this I consider the men ought, in every case, to reap the benefit of to its full extent. I regret to know that this is not always done, but the master has in some instances sought to derive a profit from the change in the practice of his men—in the cider district, for example, where it is a common thing for the men to receive cider to the value of one shilling and sixpence per week, during most of the year, and the master has proposed to substitute a money payment of one shilling per week instead. Such an act naturally excites the indignation of the men, and renders them suspicious of any alterations. The master should consider himself amply rewarded by seeing the improved physical and moral condition of those he employs, and thankful for a plan by which his work may be better done, and his men may earn larger wages, without his expenses being increased.

I cannot flatter myself that my statements will carry conviction to the minds of others—all I ask is, that your readers should institute a fair honest experiment of a fortnight's duration, each one for himself, not to prove either plan right or wrong, but just to ascertain the truth; and surely, in this age of experiments, it is not an unreasonable suggestion. But let it be truly an impartial experiment—the men fairly chosen, the ground fairly chosen, the beverage provided agreeable to the men and plentifully supplied, and all the other little things which tend so much to influence the success of a competitive trial be duly attended to; and, as is done in other experiments, let the men who are to try the *new* plan, be allowed two or three days to accustom themselves to it before they enter on the competition.

Let me urge on those who will not trouble themselves with this trial, that they should, as far as possible, make their payments in money only: this is very easy where the work is performed by the piece, and may be arranged for in the case of day-work; then suggest to the men that they should try some of the beverages named above; and if they will do it they may soon discover the truth. But where it is convenient, it is very desirable that the men should be assisted, by providing them, when they are far from home, with hot water, if they wish for tea or coffee*, or by letting the female servants prepare it for them. It is also a great kindness to let them have milk at a reasonable price, or gratis: the Irish reapers are especially fond of it

You will, I trust, observe, that I have abstained from using arguments or propounding theories—I have simply stated facts: I have referred rather to the communications of others than to my own knowledge, although I can confirm and go beyond their statements. I believe the general custom to be wrong; and I only ask farmers to try for themselves whether there is not "a more excellent way."

I shall be glad to hear from any parties who can give their own experience on this subject, and, as far as I can, to give information to those who may desire to learn, more especially if they wish for details for their own guidance.—I remain, Sir, yours, respectfully, HENRY J. WILSON.

Sherwood Hall, Mansfield, Notts, July 28.

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* Let me give a caution against trying to make coffee in an iron vessel, or the result will be a fluid as black as ink: the utensil must be copper or tin.

THE USE OF SPIRITUOUS LIQUORS.

Sir,—When we glance over the summary with which you favoured us last week, of the Parliamentary returns of brewing and distillation, and, moreover, when we remember that we have now arrived at a period of the year when a more than usual quantity of beer is consumed by the labouring class, I think a few remarks upon the consumption of spirituous liquors may be perused by some with interest.

I daresay it may be known to most of your readers that alcohol is the constituent contained in gin, brandy, wine, beer, &c., which renders them intoxicating; and according as they contain more or less of this ingredient, they are in a like proportion inebriating, and are said to be a stronger or weaker spirit. Did my time or your space permit, I could go to considerable length, and point out the action and effects of alcohol upon the human frame, but will at present content myself by stating briefly its results, which are these: Pure alcohol is a very powerful poison, but, like most other poisons, it is also a very powerful and useful medicine in the hands of a skilful practitioner; but its administration requires the greatest care and judgment. It has no place as food; it cannot repair waste of tissue: it only excites and stimulates to action, and sooner exhausts what is already in us. It cannot be a real luxury, inasmuch as it is only an acquired taste: it is not natural to us: the child at first shrinks from it, and dislikes it; but, like tobacco, by use, it becomes seemingly necessary to our existence: it impairs the functions of certain organs, teaching them to depend upon its assistance, so that its sudden withdrawal is positively an injury. At first, it is man's servant, but, after a time, it becomes his master. If the results I so frequently see arising from the use of spirits are those which constitute a luxury, I confess I know not the meaning of the term. It has no power to support bodily labour—food alone can do this: it may be useful in an emergency; but even this is at the expense of what comes afterwards. We use no such stimulants with brute animals—the horse, we repair his exhaustion by food and rest, which are the only real and legitimate means of doing so.

The same remarks apply to mental labour, and something more; and if persisted in, spirit-drinking will ultimately unfit the brain for the performance of its functions. Its power to enable us to endure cold, which some consider to be great, is only temporary, and followed by a derangement of the natural process of oxidation. Man is an oil lamp—not a spirit one: the inhabitants of the Arctic regions consume much fat, which enables them to support a proper temperature; whereas the natives of the Torrid zone live principally on grain, and we who inhabit the temperate mix the two—meat and grain. This is Nature's arrangement. But no spirit is required: this is an article manufactured by the cunning device of man. It has no power to avert disease, for whatever lowers the condition of health invites the invasion of disease; but, on the other hand, its power to produce disease is great. Professor Miller says there is no cause of disease in this country half so prolific as alcohol; and, unfortunately, the disease thus induced frequently does not terminate with the life of him who produced it, but the children inherit the evils of their progenitors—stunted in body, and often in mind, drink-loving, scrofulous, rheumatic, consumptive. This is one of the punishments of sin, and what is meant by visiting the iniquities of the fathers upon the children, to the third and fourth generation. It has no power to cherish old age: the old man, with none of the tumult of youth, nor the energy of middle age, with the machinery of his frame well-nigh worn out, can bear with impunity no such stimulating power as alcohol. If it does revive him for the moment, it leaves him more exhausted. All is well arranged by Nature—little food, little strength, little labour is required. Do not excite him therefore. He is about to undergo an important change. Let him go down to the grave in peace. It has no power to prolong life. This, I think, has been already shown; but go try to insure your life, and let it be known that you use spirits freely, and the directors will give you further evidence that its power to *shorten* life is great. It also powerfully affects the mind, but, unfortunately, for evil: it sinks and degrades the moral faculties, and intensifies those which are animal. It is no stretch of language to say that drunkenness places man on a level with a brute. Its power as an instrument of vice is great. Think of it as a producer of crime, think of its effects upon individuals, think of its effects upon families, and think of its effects upon the community at large. Its power is terrible: resist it with all your might—and here is the secret of success—*from the beginning*. And, lastly, beware of its power of attaching itself to its victim. The drunkard thinks he consumes his gin, but it is all the while consuming him. At first it inspires him with pleasant feelings, but after a time he becomes a bondman and a slave.

Having thus briefly alluded to the properties of alcohol, I will now put the question, Is it generally used consistently with these its ingredients? I must leave each to answer from his own experience. But, in considering the subject a little further, we will divide its consumers into two classes, viz., those who are habitual drunkards, and those who use it under the cognomen of a luxury or necessary of life. And, first, as to the drunkard: I daresay there are comparatively few who will say that drunkenness is right or becoming, although there are those who will call it "little harm," and point to men who have been habitual drunkards, but who have, nevertheless, attained to a good old age, transacted a great amount of business, and have been to a considerable extent respected amongst their fellow-men; but I would say they have not done this *because* of their being drunkards. But, *notwithstanding*, it is truly wonderful to see the provisions made by Nature to counteract the abuses men practise upon themselves, which leads superficial thinkers to conclude that the argument of the abstainer is a fallacy, and thus pervert the goodness of an all-beneficent Creator to work their own destruction. But, if such men would only make themselves acquainted with the fearful and wonderful construction of their frame, they would marvel that the slightest deviation from Nature's laws did not in a moment derange the delicate and complex machinery. But who can say that the man who leads an irregular life would not by regularity have attained to a greater age, or been much more useful as a citizen of the world? The respectable position he may have occupied amongst his fellow-men was not, I presume, due to his merit. No; it was secured to him by possessing that which so blinds the eyes of the world as to a man's moral character, viz., parentage or property; but strip him of these, and judge of him by his behaviour, and tell me if the drunkard be respected in society. But after all, such men as we have been considering are only exceptions. I admit they are to be found; but will any one attempt to ground an argument upon them, and overlook the premature and awful deaths—the numerous failures and bankruptcies—the destitute families, widows and ophans—the hereditary diseases and ruined constitutions—the long calendar of crimes—and, above all, the condition of the drunkard in that state beyond death and the grave. Tell me whether those few who seemingly for a while brave the effects of drunkenness, can be brought into comparison with those, its general results. It may be imperceptibly, but it nevertheless gradually saps and undermines the constitution—gradually and perceptibly it weakens and impairs the mind. After exhilaration comes depression. Who so melancholy and cast down in his intervals, who so sad in his sobriety, as the drunkard?

But let us consider the state of those who do not allow themselves upon every occasion to sink to the degradation of drunkenness, but only occasionally quaff their glass with a friend, or, like the working man, indulge in a glass of beer to refresh and restore their exhausted strength. I have already shown that wines or spirits are only a luxury from the effects of custom, and that however cheering and refreshing their effects may momentarily be, they cannot be taken by any one in full health without inflicting on their constitution a certain amount of injury. It is to be regretted, therefore, that when friends assemble for the amusement and edification of themselves and others, they cannot find some beverage which would refresh without injury—which would cheer without intoxicating. But what are we to say to the working man, who considers his beer a necessary of life? We have already shown its inability to support under bodily labour, inasmuch as it only contains the merest fraction of flesh-forming material; and exhaustion of body implies disintegration of material. This waste, therefore, we repeat, is only to be repaired by food and rest; if you are thirsty, slake your thirst by drinking water, or, if you prefer it, tea or coffee; if at first you do not like it, gradually *accustom* yourself to it: this is everything. I am quite aware of the superior cheering and enlivening effects of spirituous liquors; but I cannot shut my eyes to the great exhaustion it leaves behind, unless followed by a repetition of the dose—to its injurious effects upon the constitution—and to the danger of its seductive influence. I say, therefore, that if farm labourers were allowed the value of their harvest malt in meat, and let their beverage be tea or coffee, the good effects would soon be manifest; they would then work from real stamina, not from excitement—their exertions would be regulated by their strength—they would be much more hardy and enduring—they would gradually lose their taste for intoxicating liquors, and be brought to see that they were quite dispensable, as many are now obliged to dispense with them from necessity, but being customary, they still feel a hankering desire; and they might thus be induced to celebrate their harvest-home—the ingathering of the precious fruits of the earth—in some way less sinful and degrading, less ruinous to their soul, person, and purse, and more advantageous and elevating to their physical, moral, and intellectual powers.

And now, after these considerations, we can hardly reflect upon the great consumption of malt—the immense number of hands employed in brewing and distillation—and call it an omen of British progress: we cannot look upon our immense number of public-houses, frequented by persons of both sexes, of all ages, and of all grades, for no other purpose than to spend their money to gratify sensual and unprofitable pleasures, and incurring the risk of confirmed habits of intemperance, without the slightest benefit being gained—we say, we cannot reflect on this without regarding it as derogatory to England's greatness. Consumers of spirits, therefore, even to a moderate extent, should never forget the effects of their example on the young, and the evils entailed by the practice. And when self-interest prompts the master to go amongst his men with the bottle in his hand, he should never forget the power of the article he is dealing with, the evil desire he is cherishing in the men, and the sad result it leads to. I have often been sorry to see human nature so degraded, men so influenced and enchanted by a soul-ruining and body-destroying poison, as to do almost anything for "a glass of gin and beer." I should be gratified to see their ideas raised higher than this—to see them set a greater value upon their all—their labour. I remain, Sir, yours obediently,

Wm. Arnott

July 29, 1858.

ROYAL AGRICULTURAL SOCIETY OF ENGLAND.

MEETING AT CHESTER.

REPORT ON THE LIVE STOCK.

We find that the prizes awarded amount to no less than £2,350; of which the handsome sum of £930 was offered by the Chester Local Committee. Last year the total was only £1,620, £120 being furnished by the local committee. The present prizes are thus distributed:—

	By the Society.	Local.	Total.
Cattle . . .	£555	£400	£955
Horses . . .	310	260	570
Sheep . . .	360	260	620
Pigs	80	10	90
Poultry . . .	115	0	115
	£1,420	£930	£2,350

In addition to these, there are also the Special Prizes of the Local Committee for Cheese, to Dairymaids and Cheese-makers, and for Butter.

The division of classes is different to that at Salisbury. We have the usual "Shorthorns," "Herefords," "Devons," and "Other Established Breeds"; but "Cattle best adapted for Dairy Purposes," and "Welsh Breeds," take the place of the Channel Islands cattle. There are the customary "Agricultural Horses," "Dray Horses," and "Other Horses"; but this year it is stipulated that the "Special" prize stallions must have served, or shall serve, for at least one season, in the county of Salop, Stafford, or Cheshire, or in North Wales; that is, within the "district" of the Meeting. In the sheep classes, the "Leicesters," "Southdowns," "Long-Wools," and "Short-Wools" are in their accustomed places; but there are also Special Classes of "Welsh Mountain Sheep," "Shropshire Downs," and "Cheviots," instead of the "Hampshire Downs" of last year. In poultry there are sixteen instead of twenty-four classes.

We may note, also, that a member's "entry fee" of five shillings has been levied on each certificate for cattle, horses, sheep, and pigs; the half-crown for poultry remaining as before. Non-members pay fifteen instead of ten shillings on each live-stock certificate, and five shillings for poultry, as heretofore.

CATTLE.

The progressive numbers in the Cattle classes are as follows:

Meeting.	Shorthorns.	Herefords.	Devons.	Other Breeds, &c.		Total.
Lewes, 1852	64	29	38	92		223
Gloucester, 1853	75	43	55	20		193
Lincoln, 1854	111	29	41	17		198
Carlisle, 1855	98	32	23	19		172
Chelmsford, 1856	78	40	55	44		217
Salisbury, 1857	109	57	69	23		258
Averages of six years .	89	38	47	39		213
				Other Beasts.	Dairy& Welsh.	
Chester, 1858	126	69	37	22	54	308

Here, then, we see that the Show is one-third larger than the average, and one-fifth over last year; and, looking at the different breeds, we observe the increase to be due to the Shorthorns, Herefords, "other breeds," and the local classes; the Devons, so far from home, being very thinly represented.

SHORTHORNS.

The Bulls above two years old form a very fine class. Lord Feversham's first prize, "Fifth Duke of Oxford," 5 years 3 months and 3 weeks old, bred by the late Earl of Ducie, is an extraordinarily large beast; and though he has a weak point behind the shoulder, and his offal is somewhat coarse, the beautiful quality of flesh has placed him in his honourable position. Whether the Judges have really awarded the second prize and commendation in accordance with popular judgment, is a matter of considerable debate. Mr. Barroby's second-prize bull, 3 years 10 months and 2 weeks old, is fairly equalled by some others: however, as one animal fails in one respect, and another in some other point, it is only by turning them out, and comparing them side by side, that a nice estimate of their comparative merits can be formed Sir Charles Tempest's "commended" bull is remarkably good, with a splendid shoulder, back, and flank: he was the second-prize yearling at Salisbury, and this year wins the second special prize for "dairy purposes." We much admired Mr. Bland's "highly commended" bull, and Mr. Wetherell's "highly commended" bull; the latter remarkable for his good forequarters. Mr. Bradburne's bull gains the first prize for "dairy purposes." Mr. Ball and the Hon. Noel Hill show particularly good animals. In the yearling bull class Mr. Marjoribanks' Salisbury prize-calf is beaten by Viscount Hill's very fine animal. Colonel Pennant's "highly commended" young bull, taking the "dairy purpose" prize, cannot be admired as respects his girth; but Mr. Fawkes's is a beauty, and Mr. Torr's is also very level and good. The Bull-Calves are, certainly, a splendid class. In addition to Mr. Fawkes' and Mr. Forrest's prize calves, we notice Mr. Wetherell's, Mr. Banks Stanhope's, Mr. Jonas Webb's, and Sir William Lawson's, as exceedingly meritorious. Colonel Towneley's beautiful "highly commended," and another "commended," are very handsome, and will make very fine beasts. The Cows deservedly receive a general commendation. Mr. Booth's is magnificent: her chine and hips remarkably wide and good, and her whole character very fine and handsome. Mr. Stratton's and Mr. Wetherell's are very admirable specimens of the breed: another of Mr. Stratton's cows, beside the prize one, is of splendid quality. Mr. Price also shows a very good one. A Welsh cow, of a much poorer description, also appears in this class. The Heifer class is graced by the beautiful animals of Mr. Douglas, the Hon. Noel Hill, Mr. Logan, and Colonel Towneley; the latter being uncommonly handsome, compact, with a wonderfully-good back, and beautifully developed. Was she not deserving of a higher position? Mr. Dawson's "dairy purposes" heifer detracts from the appearance of the class. The yearling-heifers vie with the bull-calves in merit; but both are as good as ever seen. Mr. Booth's is wonderfully handsome, and magnificent in form and quality at so young an age. Colonel Towneley's second-prize heifer is a beauty: this distinguished breeder shows no less than ten animals in this class, certainly of wonderful excellence.

We have seen better Shorthorns before, but never so many first-class specimens together: we are glad to note so many fine young animals growing up, to supply the place of the matured prize beasts, for which there is such a large foreign demand.

HEREFORDS.

Mr. Price's excellent prize bull took the second prize at Chelmsford; Mr. Rea's is large, deep, and good in frame and flesh; Lord Bateman's "highly commended" took the prize at Cardiff, a very heavy beast, with amazing thighs and good loins and rump; Lord Berwick's "commended" bull is of great length, but not "out" enough. Mr. Hill's and Mr. Naylor's bulls, in the next class, are well-formed and good, beating several very beautiful animals. The bull-calves are a very large and good class here, as among the Shorthorns, but we doubt the judgment which seems to have rather hastily conferred the honours upon lucky animals. Mr. Edwards's first prize calf is very small, with too narrow hindquarters, yet good flank, capital outspringing chine and rib, and beautiful curly coat—his quality is his great point; but Lord Bateman's, Mr. Perry's, and one or two more, have so much more size and promise about them that, had we been judges, the awards would have been with difficulty distributed. The cows are remarkably fine, and receive a "general commendation" equally with their sisters the Shorthorns. Those of Mr. Stedman deserve special notice, beside the prize and commended cows of Mr. Williams, Mr. Turner, and Mr. Pitt. Mr. Rea's prize heifer is very symmetrical, with a good forequarter, and altogether both in shape and quality a beautiful animal: his second prize heifer is also very good. The yearling heifers are a large and commendable class; Mr. Rea, Mr. Child, Lord Bateman, and Mr. Price show remarkably beautiful animals for the age.

DEVONS.

A comparatively small show, yet comprising animals of great merit. Mr. Umbers' bull is large, deep, and capacious; and that of H.R.H. the Prince Consort is a very pretty beast. We also admired Mr. Webber's, which took the prize at Cardiff. Mr. Quartly is the champion with younger bulls; Mr. Turner also gets the second prize for an animal of beautiful quality; His Royal Highness's is a nice compact beast; and another of Mr. Quartly's ("commended") very fine indeed. The bull-calves are certainly beauties: here Mr. Turner and His Royal Highness are justly successful. The cows are extraordinarily good: Mr. Quartly sweeping both prizes, and those of Mr. Umbers, Mr. Turner, and Mr. Davy being particularly meritorious. The heifers and yearling-heifers are both good classes, though the former comprised but three animals—the two prize heifers of Mr. Pope, and Mr. Davy's "highly commended" one. Mr. Quartly's prize yearling is beautiful; Mr. Turner's remarkably fine, and with a particularly handsome head.

OTHER ESTABLISHED BREEDS,

NOT INCLUDING SHORTHORNS, HEREFORDS, OR DEVONS.

A polled Angus, of the Earl of Southesk, attracts attention here, being of immense length and depth through the forequarter—certainly a very fine animal. Mr. Forrester's ("highly commended") is a very good Alderney, but unfortunately has a sharp chine; an Ayrshire shown by Mr. Corbet is also worthy of mention. Lady Pigot's dun and shaggy-coated West Highland deserves the prize he has obtained, and Mr. Naylor's Brahmin bull attracted much attention. The Earl of Southesk's Angus cow is very large and deep, and of excellent character. Lord Sondes's Norfolk yearling heifers are also meritorious. Altogether, the "Other Breed" classes, though failing to bring up any considerable number of animals, yet do great service by the exhibition of really good specimens of various breeds, all more or less important.

CATTLE BEST ADAPTED FOR DAIRY PURPOSES.

It is natural that the Chester Local Committee should offer prizes (which they have done to the handsome figure of £170) for "Cattle best adapted to Dairy Purposes," of which we have two classes for bulls, one for pairs of cows, one for pairs of heifers, and one for pairs of yearling heifers. And it is a matter of great importance to see whether breeds or crosses profitable as feeders can also be good milkers; or whether we must, for dairy purposes, develope the udder and milk-vein at the sacrifice of fattening properties. The answer to the question is, that the Shorthorns, and some good ones too, have come in for most of these prizes. In the class of "pairs of cows" are some especially fine animals, both Mr. Stratton's and Mr. Ambler's having wonderfully great capacity of frame, and every appearance of being good milkers.

WELSH BREEDS.

The likeness between the Welsh and Scotch Highland cattle is generally very marked; but there are within the Principality several distinct groups which owe their peculiar features partly to diversities of soil and climate, and partly to intermixture with neighbouring breeds. The Pembrokes may be taken as the type of the mountain breeds, possessing many qualities which fit them for the peculiarities of their native district. They are hardy, thrive in a humid climate and on scanty herbage, are excellent milkers, making admirable cottagers' cows; their lean flesh is excellent, having the fat and lean well mixed, and the internal fat large in proportion to the weight of the carcass. Their prevailing and most esteemed colour is black, with deep orange on those parts that are naked. The Anglesea cattle are heavier and coarser than the Pembrokes; and those of the Merioneth and the higher districts are smaller and inferior in every respect. In the lower and more fertile parts of Wales, heavier cattle, such as Herefords and Shorthorns, are kept. But there is an indigenous breed, the Glamorgans, chiefly found in the county from which they are named, which, though inferior to these in size and grazing quality, excels them for the dairy. Some Ayrshires and Galloway sorts have been introduced, though finding little favour.

Col. Pennant's young prize bull is a very long and large animal, but with too little springing of rib to be a model. His "best bull of any age" is a very good one indeed; long, level, deep through the chest, and forming beautiful flesh; and Sir R. Bulkeley's is only inferior in form, while having uncommonly nice quality. The breeding heifers are also exceedingly meritorious and valuable.

HORSES.

To have a look at the horses there assembled, was the only tie which drew us to Chester. We had no time to adopt the children's habit, and save the daintiest piece of preserve to the last, but drove out to Eaton as soon as Tuesday's dinner was over, to pay our respects to Touchstone. The old horse is now rising twenty-eight, but he has served seventeen mares this year, and refused more than twice that number. They do not like to put a mare above fourteen to him, but Fair Helen and Rowena, who have so long been his faithful Billah and Zilpah, are both above that age. The former was, we believe, rather difficult to stint this year. We never saw the old horse look gayer, with quite a holiday coat on him, and, in fact, far fresher than he was ten months ago. His liberty with his hind legs as he walks is that of a three-year-old, and tells of that determined style in which he was wont to go, when Scott sent him fairly out in a Cup race. His high hind quarters, which have come down intact through Orlando and Teddington, please us most, and they show still more in consequence of the slight droop which Father Time has inflicted on his back. Backbiter goes on well; and if he has not all the substance we care to see, when a glimpse of Touchstone has quickened our criticism, he has a wonderfully nice barrel, and a gentlemanly style about him altogether. The Westminster farmers are said to have some very nice things by him. When an enthusiast of our party, who stood reverentially with his hat off, all the time he was in the loose-box, had duly gathered some of Touchstone's hairs for a locket, we sallied out under the drizzling rain, into the breeding paddocks. In the first, Handsome Doe, the property of Sir Thomas Lennard, was the most noticeable object, along with a capital Touchstone foal. The next contained Ghuznee, Attack, Captious, and Ann Page; but they are all solitary this season. The three former are by Touchstone, to whom Ghuznee has had seven fillies and four colts, besides being three times barren to his stint, or casting her foal. This season she slipped her foal at seven months to King Tom, to whom the whole four have been stinted. As Ghuznee and Touchstone's ages would nearly make up half a-century, their banns are dissolved. Their bonâ fide last was Engineer, who died in Mr. Parker's hands very early in the day, and the one since that is supposed to be Backbiter's. One more glance at the shorthorn with the immense "housemaid's knee," which is occasionally reduced by making a seton, and stuffing the aperture with bacon, and back we went to have a look at ten hunters out of the twenty-five, which Lord Grosvenor has purchased for the Cheshire.

The lights were just beginning to gleam from the windows of the Hall, and the hares were skipping out by scores to feed, when we once more sought the city. We pulled our macintosh up to our ears, as the rain pelted down on us through the leaves, and thought, as the night drew on, and at last fairly hid the white-tented Roodee, that we did not envy the judges, who had to be in that racing "slop-basin" at six next morning.

To get through the 216 (who all showed except a dozen or so) was no May game for the judges, considering that they have not only to look at each through a microscope, while the public, who review their judgments *in Banco*, employ a telescope; but to see the paces of such as have the slightest pretensions. We cannot help saying, however, that half the pleasure of the show is lost on the first day, by the non-announcement of what have won the prizes. Surely nothing could be easier than to have different-coloured rosettes for the first, the second, the highly-commended, and commended. By the exercise of a little common management, they might all be affixed to the successful numbers by three o'clock, and thus visitors would not have to trust to mere report, and be spared the annoyance they now feel at paying double the Thursday's price, and having half their pleasure taken from them. But to proceed:

Class I, for "Agricultural Horses, foaled before January 1st, 1856," was not a very strong one, either in numbers or stamp. Twenty-eight were shown, and of these only six were Suffolks. Small as this proportion was, they won the first prize and the two H. C.'s. One of the C.'s went to a Manchester horse, the other to the Clydesdale "Sir Walter Scott," and the five Cheshire champions were nowhere. Last year no less than eight got mentions. "Royal George," the winner of the class 2 prize at Salisbury, was not shown; neither was "Young Inkermann," who came second to "Matchless" in this class. The winner "Emperor" is by "Newcastle Captain," since sold by Mr. Barthropp to the Rev. Mr. Beevor, of Cowbridge, Glamorganshire, who has done not a little to improve the cart-horses of his district. This silver-haired chesnut stands at least sixteen-three, and he has such quality for a cart-horse, that when you stand at his shoulder and glance athwart his beautiful back and loin, you might fancy that, but for the colour, you were looking over the race-horse Nutwith. His legs are short, but not of the class which his top entitles him to, and he is rather in at the elbows. Next him stood Mr. Biddell's chesnut Suffolk "Major," who was second in this class at Chelmsford, and highly-commended. Mr. Fairbrother's "Ashburn" was a great heavy dapple dark brown, with not very first-rate fore-legs; and "Young Champion," though claiming to be a Suffolk, looked more as if he was out of a Cleveland mare. Mr. Nightingale's pair stood side by side—"King William" active and little, and "Grey Gilbert" with immense quarters. "Brockton" was useful, but not good behind, and puffy in the hocks; "Lord Raglan" was compact, short-legged, and the bearer of 18 prize medals; while "Boxer" was rather drooping in the back, with not a first-rate carcase, and rather too white on the legs to suit his county's critical eye. "Victor," who was highly-commended as a yearling at Chelmsford, supported the honour of Leicestershire as second here, but his shoulder is to our eye rather too loaded. The highly-commended "Champion" was very fine indeed for his age, with a capital loin, and shows a great deal of Catlin's Duke about the eye; and in spite of the rare back which the highly-commended "Salisbury Duke" (so called from being second in his class there) had to show, he did not stand well with his fore-legs, and his walking-action was said to be not very good.

In class II, for "Agricultural Stallions foaled in 1856," "Monarch" and a chesnut Suffolk of Mr. Wilson's were commended; while Mr. Crisp's "Ploughboy" was highly commended. Last year there were ten commendations, five of each order. Out of the five whom the judges placed this year, three were Suffolks. Opinion was divided as to Mr. Crisp's two, one of whom, "Suffolk Emperor," was the winner, and struck us as being rather short and pig-eyed. "Ploughboy" had hairless legs, a good deal of quality, and thick through; but perhaps a little low in the back, and with slight traces of the light-loined mare who bred him. "Young England's Glory," the second in the class, had very good loins; and "Monarch" was very upstanding, but with hardly width of chest for his carcase. The iron-grey from Tarporley was rather stylish. "William IVth" had great bone, but was rather too big for his age. "The Colonel" was a melancholy object. "Gloucester" had great power in his hind-quarters. "Young Koh-i-noor" was good through the heart, but his hocks made his gaskins look mean; and "England's Glory" had a bad colour and quality of leg, but an excellent middle. "Champion" was a nice stamp of horse, and especially so behind; "Iron Duke" had very long hind legs; and Prince Albert's "Young Glenelg" was rather short in the back ribs, and not one to bear the tape; behind the shoulders, too, he was by no means first-rate, and his head would remind us of the 640-guinea Cassio whom Mr. Anderson, of Piccadilly, lately bought from Sir Watkin Wynne.

Class III., "for Mares and Foals for Agricultural Purposes," had only four mentions, to show against the ten last year, eight of which were H. C.'s. "Jessie," the winner, was a fine big mare, with rather too long pasterns, and a young and bad foal. "Mettle" had a good foal, but was loose-ribbed herself. "Jewel" had good bone, but was slack-loined. In that point we thought "Gipsy," the second prize mare, defective, but still she was nice and level; while "Gip," the commended, was great and plain. The commended "Topsy" was rare behind, and very showy and strong; but Mr. Taylor's highly commended mare seemed to have a blemished fetlock. "Brisk" and "Depper" were both commended; the first was scarcely big enough, and rather too wide between her front legs; and the latter had good style and great length, and has had the winning ribbons, if we mistake not, twice on her head in Suffolk, both as filly and mare.

In Class IV. for "Two-year-old Fillies for Agricultural Purposes," five out of twelve caught the Judges' eye. Nottinghamshire came to the fore with a nicely-turned strong-carcassed grey of Mr. Whatton's, and Colonel Pennant was second with "Flower," a thick and strong dark bay, with rare legs, but rather slack ribs. Mr. Crisp's "Jewel" was nice, rather small in the arms, and not inclined to stand quite true, and hardly deserved to be highly commended. Of the two commendations, "Missy" had good legs and ribs, and was little and cleanly; while the Prince Consort's "Bessie" was long and plain.

The Dray Horses Class I. came out much stronger than they did last year. It was then a case of "Eclipse first and the rest nowhere" with the white-nosed "Conqueror" (now Mr. Groves's), who won that extraordinary extra stock prize at York, a fortnight after, against some forty animals of every kind. The gigantic grey Glengarry seems to have filled the Judges' eye at once, and that silver-embossed bridle of his did not a little for him. With the remembrance of the compact Conqueror we could not take to him much, and he kept "favouring" the near hind leg in a somewhat suspicious style. "Young Matchless" was highly commended and useful; "Lord Nelson" was on a wonderfully coarse leg; "Young Conqueror" was catching, but his back-ribs were not first-rate; "George the Second" was thick and useful; "Young Active" high and short; and "Napoleon" earned his commendation from his very grand quarters, though we thought him rather low in the back, and rather failing in his ribs. Of Dray Horses Class II. we may simply say that they were three in number—"Hillesden" the best, "Farmer's Glory" out of his class, and "Clydesdale Hero" all legs.

In the special prize list, Class I., for Agricultural Stallions, "Matchless," the Salisbury winner of last year, had to bow his head before Nonpareil, the traditional bay, and quite the best known holder of a stall at agricultural meetings. The grey, who was once reported, we know not why, to have followed suit with the prize Shorthorn bull of last year, seems to have rounded somewhat since Salisbury; and he is an exact model of those beautiful greys over which one was wont to linger with such delight, in one of Abraham Cooper's earlier pictures. To speak of Nonpareil is to repeat a thrice-told tale; but he was a "veiled prophet" when we got up to him, in order that he might "sattle to his meat." His feet seemed to astonish every one, and all Cheshire agreed that they were as big as warming-pans. "Ploughboy" was seventeen-two, with immense limbs, and short for his height; but "Cleveland," as his name betokened, was quite light, and bordering on a coach-horse. "Suffolk Emperor," and "Young England's Glory," were first and second again.

In Class II. "Farmer's Friend" was a good commendation from Flintshire; and as for "Black Ball," his owner must have shown him for a practical joke.

Class III., Agricultural Horses in pairs, we thought very middling; and Mr. Crisp's two chesnuts, one of which, "Depper," was commended in the other Class III., decidedly the best.

Class IV., for "One-year-old Fillies or Geldings for Agricultural Purposes," was also weak, and taking the agricultural horses and mares as a whole, they were perhaps up to the average, but decidedly inferior to what they were at Salisbury.

It is seldom the fate of the judges to please in their thorough-bred decisions at this show. In 1854, the public gave Maroon the decided call of Loutherbourg; next year The British Yeoman was generally thought to fulfil the conditions of the prize, as a sire for getting hunters, better than Ravenhill; although no one could dispute that the latter, as he has proved himself, is admirably adapted for getting coaching horses. The Yeoman had it all his own way at Chelmsford the next year; and at Salisbury the adherents of Hobbie Noble (who was, strange to say, in the town, on his way from Holyhead to Cawston, and obliged to halt there, from a leg injury which he had received in the train), found many to disagree with them as to his right to either prize. The judges, as it seemed to us, might have overlooked the trifling lack of length in Theon, and given him the prize there, and left Spencer second, a position which he held to Dagobert two or three weeks after, at York, in a much stronger show-field. This year Theon did not show, and the only opposition of the slightest moment to Spencer came from Canute. The chesnut arrived with four Yorkshire medals round his neck, and we believe that he has once, if not twice, beaten Spencer, so that "Kit" might well anticipate another victory. It was, no doubt, a near thing; but to our minds, the judges were right. Spencer has improved so much, that we did not remember him; but, like Theon last year, he had an unfortunate fit of the fidgets, and would keep quiet for no one. He is about fifteen three-and-a-half, shoulders and back all muscle, and very elegantly turned in his barrel and forehead. In fact he is full of breeding, and of a most selling colour, which is always a great point; and the Bishop of Oxford, who knows better than any one on the bench what a horse is, might well say, "*Oh! charming!*" when he reached him. There was not actual fault to find with his legs, but perhaps they were a trifle lighter-timbered than we like them. He was trained by John Osborne, but achieved nothing. Canute merely wants time to furnish out into a very fine horse; but strange to say, he is much the more coltish of the two, though a year older. He is a more slashing style of horse, so to speak; and it is this, we think, which must have found favour for him in the Yorkshiremen's eyes. Owing to Spencer not going for the special prize, Canute placed £50 to his owner's account by the trip, and Spencer only £30. The stalls of Strychnine and Poynton were vacant, and an Irish-looking chesnut, Comeaway, was third, but got no commendation in such company. He is, we hear, an excellent sound hunter, and is ridden by his owner with the Atherstone, when he is not in his Rosamond's bower,

There were many good rough points about him plenty of length in his arms and thighs, but he had a common head, and was rather cross-ankled. Johnstown's feet were not right, and he had been fired for ring-bone, &c. His colour was very beautiful, but he was too narrow between his fore-legs. Peppermint was a shallow creature, with no bone. Epinicia was flashy and on a high leg, and had a large lump inside the off hind one. Raven's colour was capital, and he reminded us not a little of his sire, but he ought to be in a coacher class. Mr. Stiggins was high on the leg, and quite a showy charger getter, but his fore-legs were not nice. Still he has improved since last year. Grosvenor was a neat pony edition of Touchstone, lacks length, and is upright in his pasterns, and poor in his back ribs. Surely Cheshire might have done much better if she had sent Backbiter, and in all human probability she would have won the prize if Buckthorn had been retained at Eaton. It was a crying shame to see Burndale in the yard, as no human end could have been served by bringing such a little, thin-shouldered wretch. Two men had to lead him when he came out, and there he was all day, with his ears back, bound to the front rail of his stall, his head one mass of strap-gear, with two if not three bridles, and a chain and a steel rod attached to it, which fixed itself right above his nostrils. There he stood, a picture of sullen, impotent fury, with the steel rod, as it were, pressing the nostril till foam fairly exuded from it. It was a sight to turn anyone sick, and we wonder the stewards allowed it. If his owner cannot cure him, there is no excuse for keeping such a thirty-pound animal in the flesh, to torture himself, and to endanger grooms' lives. Has Mr. Rarey's name never penetrated to "Madryn, near Pwlheli, Carnarvon"? This part of the Show is sadly disappointing. It must be that the second prize tempts owners to send any kind of animal on the off-chance; and certainly it is passing strange that when the other stock departments can command the pick of everything, that we should have the mere tag-rag of the horse world here. The fact is, the Society began by despising this department, and made it a nonentity for years; and thus it has fallen into disrepute, and the winning of the prize confers no caste. We should like to see the second prize abolished, and the head prize made £50 or £60, and then there might be some hope of bringing out good horses. The judges this year were both hunting men, and owners will not send unless a similar style of selection is adhered to.

The Hackneys, Class II., were again an odd mixture of competitors, and here exhibitors do not know what is wanted. Last year the prize was won by Hotspur, a clever blood horse who ran second for the Derby, against a flock of coachers, Arabs, and we know not what; and this year the decision fell to quite one of the old trotting stamp. The judges got as wide as the poles, at last, between the winner and The Major. The former, "Troubadour," was a chesnut roan, very even and good throughout, with clean shoulders, well into his back, capital loins, and a nice neat goer. "The Major" had carried John Walker with the Wynnstay for seven seasons, as true as steel, and bore very slight traces of his work. He had a great deal of The Colonel stamp about him, but he was slightly cross-ankled, and not very great in the girthing-place. Captain Barlow was all for him, and Mr. Nainby for the winner, and the umpire decided for the latter. We cannot help wondering that they did not split the difference, and go for the horse who was exactly the union of these two extremes—to wit, a nice little brown, "Young Harkaway"; but he, like "The Major," was put back, as being a hunter out of his class.

"Dick" was quite small, "Capt. Brown" was lengthy, but on short and rather stale front legs. "Serenader," a son of "Troubadour's," reminded many of the old line, "Until at last the old man was beaten by the boy." He had all the roadster style about him, and with substance for ever; but his head was put on rather hatchet-fashion, and slid oddly into his bosom, and his quarters were rather mean, and not quite in keeping with his forehand. "Our fat friend," Stotforth, resigned his hunter-sire pretensions, and tried his luck in this class this year. He is certainly a nice phaeton horse, with the straightest back we ever saw; but his ankles are not to our mind, and he looks quite set in a mould. "Brilliant 3rd" was very common and hairy-legged. "Tuft-Hunter Junior's" head was like his sire's, and he had lots of length, but his feet were not nice. His great peculiarity was that his leg was enormously wide below the knee; and for his size we have seldom seen a horse beat him in that point.

Class III., for "Mares for breeding Hunters," was weak. "Coronella" had small knees, and by no means nice hocks. The prettiest in the class, "Conqueress," a flea-bitten grey, was too long-necked, but otherwise very catching. "Miss Clarke" was a great fine lengthy mare, with very strong joints, and but for the judges considering her too much of a coacher, she would have taken the prize. "Potichomanie" had rather flat feet, and was blind of an eye, but her quarters were pretty. The four-year-old, "Vanity," by "Maroon," had a great deal of style about her, and, like "Miss Clarke," was commended; but the judges seemed to think that, at four years old, she could hardly be a brood-mare. "Hannah" was merely a coaching-mare. The winner, "Golden Locks," won more on the demerits of the others than her own hook. Still she is a fair style of mare, but lacks those fine hips which ought to be a *sine quâ non* for a mother of jumpers.

Class IV., for "Mares for breeding Hackneys," was an equally weak class. The winning grey was certainly neat-headed; but "Beauty" was a mare with a plain croup, bent fore-legs, and coarse hocks; while "Miss Fussell" was rather like a camelopard as regarded the height of her front legs, and a light-boned mare altogether.

Three other blood-sires competed for the special prize, but they were hardly worth sending. Of the "special prize" blood horses which showed only in that class, we may simply remark that "His Grace" had a very sweet head; "Young Windsor" was of the coacher school; and "Gorgerat" was light behind the saddle. From so much that was bad and unworthy of England's hunting fame, it was pleasant to turn to Class II., the "Mountain-pony Stallions," which was a capital one. "Turpin" went well; "Llwytmor" was as handsome as paint; "Dick" was perfection, but small, and didn't go well; "Dandy" was also too small; "Tommy" was nice, but didn't go; and the second-prizeman, "Toby," a blue roan, with a flap crest, had more size than the rest, but lacked action: in fact, there were looks enough in this class, but action and size were wanted in too many instances. "Highland Laddie" was an easy winner, in size, shape, and every thing; but he did not bend his knee in the true orthodox fashion. Still the crowd fairly "rose at him" as he stepped out of the yard at last. Four months ago Mr. Moffat bought him for £25, to act as teazer to British Yeoman on his rounds; and one of the judges offered Mr. Pain £20 for his bargain a minute or two after he had bought him. We wonder that "Cannie Cumberland" consented to let him go so cheap. The price Mr. Pain wanted was £120, and though Mr. Starky felt pretty sure that Fisherman was at that identical moment winning the Queen's Plate at Nottingham, he did not care to lay down more than the hundred; so the twain split the difference. As fancy shooting ponies, and geldings too, have gone, he is not so dear after all. The Mountain Mare Ponies, Class III., were feeble as a lot; but there were three commendations amongst them. "Paget" was good; Mr. Roberts's was small, but went well; "Jenny" was pretty, but did not go. The second-prize, "Jenny" was a good average; and so was the commended "Bess;" but we thought them far below the first prize, "Old Bessy," upwards of twenty years old, who just saved the class by an inch, and was a complete miniature of a lengthy little bay hunter. In fact, she, "Spencer," and "Highland Laddie" were the objects we carried away in our eye. Classes IV. and V., for Welsh Ponies, had nothing good, except perhaps "Ruby." Class VI., "Two-year-old Geldings or Fillies for hunting purposes," did not come up to the mark. "Pretty Boy," the winner, had nice hocks, rather far behind him; and Mr. Denton's chesnut had good bone, but was slightly cross-ankled. Class VII., for "Yearling Fillies, Colts, or Geldings for hunting purposes," was much better. The winner was a Grosvenor, with nice length and style; and his half-brother had much the same character, but was rather taller, and narrow and light in his back-ribs. "Sandy" was a good improving colt, useful and plain, but "Hector" had a malformation of the off hock. The veterinaries were very hard at work all day, and disqualified, within our knowledge, two horses for cataract, one for chronic cough, and one for being thin-soled. What they did with the roarers we know not, but one at least of these unfortunates prophesied pretty loudly of himself.

The great treat of the Show was to see the stallions file out at last; and it is often not till then that the real strength of the Show can be judged of. The great "Glengarry," especially, made us think that, despite his imposing size, he looked better "framed" in his stall. There was a perfect roar at "Black Ball." Some recommended bran, and some pudding, for the improvement of his remarkable frame. The populace would make the ponies show their paces, sadly to the annoyance of some of their conductors, who were so weary with the long day that they could hardly shuffle over the ground, and got told, to their woe, that they had eaten too much.

SHEEP.

LEICESTERS.

The classes of sheep were exceedingly good, but not equal to some former years in quality, or excellence in hand or proportions. The numbers in some of the classes manifested a considerable falling off. The Southdown class this year had only 53 entries, several of which were not filled up. The Cotswolds shewed in considerable numbers, and partook as largely as ever of their usual gigantic proportions, and, in some instances, excelled in firmness of hand and quantity of wool. The Leicesters certainly are below the average of some former years, whilst the Shropshire and other short-wools manifest again a decided superiority; of the "other breed" classes we cannot say much. Some useful Cheviots and mountain sheep were exhibited.

We give another tabular form of the entries for a few past years. The number of pens of sheep entered at different meetings is as follows:—

Meeting.	Leicesters.	Southdowns.	Long-wools	Short-wools.	Other Breeds	Total.
Lewes......1852	55	88	15	0	25	183
Gloucester..1853	64	95	80	0	53	292
Lincoln 1854	102	67	96	0	38	303
Carlisle 1855	119	51	63	0	97	330
Chelmsford 1856	60	165	52	0	2	219
Salisbury ..1857	66	118	84	128	37	443
Average of 6 yrs.	77	87	65	128	42	295
Chester ...1858	70	53	77	110	46	356

The Chester Meeting, therefore, shows a falling off of nearly one-fifth, compared with last year, being chiefly in the two classes of Southdowns and long-wools.

It is not our intention, this year, to go through each class consecutively, or to attempt a short critique upon each meritorious animal. It may be pleasant to each exhibitor of a first-class animal to see him favourably noticed, but to the general reader it is a matter of more indifference; and whilst 500 may read us, 5,000 pass us over unnoticed. We now commence more generally with Leicesters.

Class 1.—Shearling rams; in this class, Mr. T. E. Pawlett, of Beeston, Beds, is the most successful competitor, winning the first prize of £20 with No. 391, a sheep of unusual beauty and fine frame, his hand and quality equal to those shown by Mr. Pawlett in former years, and possessing all the valuable characteristics of his far-famed breed. The whole of the animals exhibited by this breeder show much in his favour: we like to see the same character kept up from year to year; and if a little improved in size, all the better, providing the fine form and firm quality of hand be retained. Mr. R. W. Creswell, of Ravenstone, Leicester, takes the second prize with No. 420, with an animal of great credit, of which his breeder may be proud. The Judges were very wary in awarding a high commendation: they would not have greatly transgressed had they done so; but Mr. Pawlett did receive a commendation with No. 394, Mr. John Borton, of Barton House, Malton, with No. 404, and Lieutenant-Colonel Inge, of Thorpe-Constantine, Tamworth, with No. 412. Mr. Barton's sheep possess larger proportions than any other Leicesters exhibited, and have excellent hand and fineness of offal, with good looks and plenty of wool. We were given to understand that he had a successful day, which confirms our hint expressed above. Mr. Geo. Turner, of Barton, Exeter, showed his usual quality and proportions, quite in character with rather large Leicesters with lengthy frames. Mr. Wiley's are good useful sheep; and Mr. Simpson, Mr. Creswell, Mr. Watkins, and Mr. Spencer fully sustain the excellent character of the class. Colonel Inge's lot are quite first-class animals.

Class 2. Leicester Rams of any other age.—Here, again, Mr. Pawlett takes the £20 with No. 430; Mr. Spencer, of Claybrook Magna, Lutterworth, taking the £10 with No. 450. Mr. Creswell receives a high commendation with No. 447; Mr. Pawlett a commendation with No. 431; Mr. S. Umbers, of Wappenbury, Leamington, with No. 433; Mr. John Borton with No. 438; and Mr. George Turner with No. 440. This was a splendid class of Leicesters, and will do much to keep up their long-established credit, which we confess we thought to be somewhat on the wane. We missed Mr. Sanday's celebrated animals; they have generally won our high approval.

Class 3.—The Shearling Ewe class.—Lieutenant-Colonel Inge takes the £20 with No. 455, a very good lot; and Mr. Samuel Wiley, of Brandsby, York, takes the £10 with No. 459, a lot highly creditable. This class we did not think equal to former days, though possessing several excellent pens of first-class animals.

SOUTHDOWNS.

Class 1, Shearling Rams.—The first prize of £20 was awarded to Mr. Wm. Rigden, of Hove, Brighton, for his No. 461; and the second of £10 to the Duke of Richmond, for his No. 472; and thus the prize list disposes of this class—a very short and summary course, which we do not remember ever to have seen adopted before. No high commendation; nor even a commendation. These are such usual matters-of-course, that, when done, no one observes the thing, but it passes on without remark or comment. But when we refer to our prize list, and see all passed over in silence, and without the slightest notice, every professed breeder or amateur becomes a judge, and asking, how is this? proceeds to criticise. We should do it ourselves. *We did do it;* and our first observation was: Look at those splendid animals of Lord Walsingham's! What, are none of them entitled to a commendation? Why are they to be unnoticed? Then look at those beautiful sheep, the property of his Grace of Goodwood: they are rather finer in frame, but denote somewhat lengthy proportions, their beauty being unsurpassed. Or, again, examine the Duke of Manchester's, the Duke of Beaufort's, Mr. Lloyd's, and Mr. Longbourne's—all highly creditable to their class. Then why is it that no credit is given to them? Surely commendations are cheap enough! However, the taste has long been set. Mr. Jonas Webb has set it, Mr. Rigden has upheld it, Mr. Lugar has fostered it, Mr. Grantham and Mr. Ellman have sanctioned it, the Duke of Richmond has abetted it; and so it has become a fact. On the contrary, Lord Walsingham has aimed at larger proportions, Mr. Overman and others at more substance and more wool. A prize is to them an accidental occurrence—*it does not accord with the established taste.* But we see a change in the public mind: larger animals are sought for everywhere: more wool is required: cross-bred sheep are universally prevailing, and why? Because more wool and mutton is obtained than the pure breeds afford. The price of pure Down wool and mutton does not to any extent exceed that of cross-breeds. The art of breeding warrants this course; it is consequent from the improvement of both large and small breeds: combined they are more profitable. We caution the breeders of pure-bred animals of small size of any kind. They are getting behind the times in which we live. Even the mountain sheep are growing large: witness those shown at Cardiff. We caution our leaders to look ahead. We caution all their followers to aim at more substance, and keep their quality; others are doing it, have done it, and will soon take the lead. We do not say these classes are fully equal to some former exhibitions, but they are very good. We undoubtedly missed Mr. Jonas Webb's, Mr. Scott Hayward's, Mr. Ellman's, Mr. Overman's rams, and some others which contributed at Salisbury to form such a splendid show; but that is no reason for passing over splendid animals so silently or with scarcely a remark—only one commendation marking the real opinion of the judges.

Class 2—Rams of any other age—is passed over precisely in the same way, Mr. Rigden taking the first prize of £20 with No. 461, and the Duke of Richmond the second prize of £10 with No. 472.

Class 3—Shearling Ewes—was well sustained and the Duke of Marlborough's beautiful pen extorted a high commendation, but as before, Mr. W. Rigden took the first prize of £20, and the Duke of Richmond the second prize of £10; thus thrice repeating the same story. And here we would remark that we thought the judges scarcely kept to their *taste* in this class, for they passed his Grace's favourites, and gave the prize to the second lot. We thought the first lot a pattern of Southdown beauty, Mr. Rigden's and Lord Walsingham's fine animals either of them deserving commendation.

LONG-WOOLLED SHEEP.

(NOT LEICESTERS).

Class 1. Shearling Rams.—There was an admirable competition in this class; but the almost unconquerable Mr. W. Lane, of Broadfield Farm, carried off the palm, winning the first prize with No. 542, and the second with No. 543, both of them superb sheep, of immense proportions and beauty, and, what is better for this class of animals, of excellent hand and quality. Mr. Porter's No. 530 and Mr. Robert Garne's 540 received high commendations; and Mr. Geo. Fletcher's No. 521, Mr. Thos. Porter's No. 532, and Mr. W. Hewer's No. 547 received commendations. The class was a splendid exhibition of Cotswolds, and fully supports the great celebrity and value of the breed. The early maturity of such animals is astonishing, and the extraordinary weights arrived at by these sheep at 16 months are almost past belief. This must be the breed to feed the multitude. Sheep that can attain to 40 or 50 lbs. per quarter in 16 months, and yielding a heavy fleece of good wool, are calculated to win the palm from all others as serviceable animals for a country's good. In class 2 several most astonishing sheep were shown; the one exhibited by Mr. W. Lane measured 6 feet in girth, but did not take the prize. The first prize of £20 was borne away by Mr. W. Hewer, of Hill House, Northleach, with his No. 573, a sheep having all the good characteristics and points of this approved breed. Mr. Robert Garne, of Aldsworth, Northleach, took the second prize of £10 with his No. 567, a splendid animal of like porportions and worth. Mr. Geo. Fletcher's No. 564 was deservedly hnoured with a high commendation; and Mr. F. Beale Brown's No. 566 and Mr. W. Lane's No. 571 received commendations. These classes were well sustained; 44 being entered in the shearling class, and 17 in the aged class, any one of which would be worthy of a prize. Mr. Handy, Mr. Smith, Mr. King, Mr. Tombes, Mr. Howell, and Mr. Jas. Walker exhibited some capital sheep in these classes, which were highly appreciated by the public. In class 3, the shearling ewe class, Mr. W. Hewer carried off the first prize of £20 with his pen No. 589, and Mr. W. Lane the prize of £10 with his pen No. 587. Mr. Thos. Walker's pen No. 578, Mr. Geo. Fletcher's pen No. 579, Mr. T. B. Browne's pen No. 582, and Mr. W. Lane's pen No. 588, received commendations. We have seldom seen a more useful or better class, plenty of every kind and quality that a breeder may desire in his sheep. Mr. Hewer's are a very superior lot, as are also Mr. Lane's, and both richly deserving the distinction they meet with. Mr. T. B. Browne's are very good indeed; but it is almost invidious to make a selection out of such a transcendently superior lot.

The classes of long wools have this year obtained the greatest tokens of public favour, and the pens were much thronged. Additional interest was given to these classes, from the announcement that Mr. T. B. Browne had given a challenge to show seventy of this breed, bred by himself, for 1,000 guineas, against seventy the property of any other breeder, and that Mr. W. Hewer had accepted it. We may, and do, admire the talent of these spirited breeders; but there appears something more in this—it looks like vexation, and we question the propriety of such kind of rivalry being excited by the decisions of competent judges selected by our Society. We hope long to see breeders exhibiting in harmonious competition; but when a disappointed exhibitor proceeds to challenge all his competitors, it is paying a poor compliment to those judges who have to the best of their ability given an impartial decision; while, after all, the challenger has had to succumb, and pay his £500, rather than proceed to show. We don't like the feeling, and hope never to see it again. Ours is a peaceful rivalry, and not designed to call forth indignant feelings, or to pit one breeder against another. Let them be content to bring their sheep before the world through the Royal Agricultural Society, and there leave the result. However, Mr. Hewer had no option but to accept in this case a challenge so loudly given.

SHORT-WOOLLED SHEEP

(NOT SOUTHDOWNS).

These classes were well filled up with fine and noble specimens — Hampshire Downs, Shropshire Downs, Oxfordshire Downs, West Country Downs, Short-wools, Down and Cotswolds, and Cheviots. Here now the judges had ample scope for the exercise of the most general or the most fastidious taste. We have already said that the public taste is setting in for larger sheep. "It is quite clear the larger varieties of short-woolled sheep are gaining in public favour. The Shropshire Downs have for several years stood high as a distinct breed; they are very prolific breeders; they fatten upon very moderate food; their form is in good proportion, and they yield good fleeces." In reporting upon the Gloucester Meeting, we said something like this—that the best sheep in the show was a Shropshire Down. From that time our eye has been upon them, and, taking them in every point, we have yet to be convinced that they are much surpassed by any other breed. The West Country Downs are nearly equal to them in size and general proportions, and, in fact, are truly Down sheep of a larger character; but the Shropshire Downs are a cross from the Leicester, or rather larger breed of long wools, and this cross pursued till a definitive breed was established. Mr. Humfrey's (of Oak Ash, Chaddleworth, Berks) are West-country, or, as we believe, Hampshire Downs. He takes the first prize of £20 with No. 647, and the second of £10 with No. 650; his No. 651 received high commendation, and a commendation was given to No. 648. This is no slight honour for one flock to attain. They are very superb animals of their kind. Messrs. J. and E. Crane with Nos. 622 and 625, Mr. J. Bryan with No. 638, and Mr. W. O. Foster with No. 640, also received commendations. This was an extraordinary class, containing no less than 60 capital specimens of their respective breeds, possessing great qualifications in those essential points—size, frame, wool, and mutton.

In Class 2—rams of any other age—Mrs. Baker, of Grendon, Warwickshire, takes the first prize of £20 with No. 666, a sheep of remarkable beauty and exquisite symmetry, though rather small for the class. Mr. Geo. Adney, of Harley, Much Wenlock, took the second prize of £10 with No. 660, a sheep of great size and substance, with correct well-proportioned frame, and plenty of wool. His No. 659 we thought an extraordinary sheep. Mr. John Bryan with No. 667, and Mr. Wm. Humfrey with No, 677, received high commendations. Mr. J. W. Brown with No. 652, Mr. G. M. Kettle with No. 654, Mr. W. Humfrey with Nos. 675 and 676, received commendations. It would appear rather invidious to name the breeders of animals which most caught our attention in these superlative classes; but it is but fair we should do so, as, upon examination, we thought ourselves correct in our judgment. The sheep shown by Mr. Humfrey were unusually good. Messrs. Cranes' Shropshires are all you can fairly desire. Mr. Adney's possess great substance, and have immense frames, of great length. Mr. H. Smith's are highly serviceable animals, and Mr. W. O. Foster's are very complete. Mr. Brown, Mr. Kettle, and Mr. Bryan show some exceedingly useful sheep.

In Class 3—shearling ewes—Mr. Humfrey again takes the first prize of £20 with his pen No. 699; and Mr. Robt. Coles, of Middleton Farm, near Warminster, takes the second prize of £10 with pen No. 688. Messrs. J. and E. Crane's pen No. 690, and Mr. W. Humfrey's pen No. 700, receive high commendations; and Messrs. J. and E. Crane's pen No. 691, and Mr. E. Holland's pen No. 698, receive commendations. This is also a very superior class, and many prime animals were exhibited—some extraordinary specimens for size and substance, which fully bear out the profitable character of these various breeds, brought together in pleasant and peaceful rivalry from so many parts of the kingdom. We are right glad to be enabled to test their comparative merits.

SPECIAL PRIZES

GIVEN FOR SHEEP BY THE CHESTER LOCAL COMMITTEE.

Sheep Class: Welsh Mountain Rams of any Age.—Before entering upon any critique of these classes we may be pardoned for indulging in a few remarks upon mountain sheep generally. The sheep ranging upon the higher mountains differ from those more extensively diffused upon the Welsh hills; the latter distinguished as the soft-woolled, or white-nosed variety. The sheep of the most elevated districts are small, seldom exceeding 5 or 6 lbs. per quarter, when fattened. Both sexes are horned; the nose black, the neck long, and arched backwards, the fore quarters low in proportion to the hind ones, the chest narrow, and ribs flat; the wool on the sides is short and fine, though somewhat mixed with "kemps," that on the breech being longer, but hard and wiry, while a ridge of coarse hair extends from the neck to the tail, and the throat is also hairy. The fleece weighs from 1 to 2 lbs. The colour embraces every variety of shade between white and black The mutton is uncommonly sweet and good. The white-nosed sheep resemble the milder race, both in their form and restless disposition. The rams are horned, though the females are rarely so. The general colour of the face and fleece is white, though there is a natural tendency to produce black lambs. The fleece weighs about 2 lbs., the wool being longer, of fair quality, and freer from "kemps" than the other variety. It furnishes the material for the well-known Welsh flannels and hose. Although very small, the breed is larger than the other, varying much according to the pasturage upon which they are fed. The largest are found in Anglesea, where, however, there has been much crossing with other breeds. The mutton is greatly esteemed in the metropolis, where it commands an extravagant price. The diminutive size of the Welsh sheep being so far below what the majority of the pastures might produce, it is a question whether the more spirited sheep-farmers ought to aim at improvement by proper selection of breeding animals, and due attention to feeding, or whether they might not still better substitute for them the hardy black-faced and Cheviot breeds, the former for the higher grounds, and the latter for the lower hills. The Local Committee, therefore, have done well in instituting these classes, as it is only by comparative merit shown in these competitions that these desirable results are made known, and are fully appreciated.

We now proceed with Class 1: Welsh mountain rams of any age.—A nice little class. The first prize of £15 was awarded to No. 969, the Hon. Col. Pennant's ram, Penrhyn Castle. The second prize of £10 to No. 973, David Roberts, of Plas-yn-y-Cornel, Llansamon.

In Class 2 — Welsh Mountain Ewes of any age.—Mr. Thomas Roberts, of Bodidris, Llandegla, Denbigh, takes the first prize of £15 with the pen No. 980; the second prize of £10 is awarded to the pen No. 981, the property of Mr. R. B. Mynors, of Evancoyd, Presteign, Radnor, and the third prize of £5 is also awarded to Mr. Mynors, for his pen No. 982.

Classes 3, 4, and 5 are Shropshire Downs exclusively, and as they come under the inspection of another class of judges, *i. e.*, Messrs. Halse, Thompson, and Watson, one is a little curious to see how they accord with Messrs. Blundell, Brown, and Thurnell, in judgment.

Class 3: Shearling Rams.—The first prize of £20 is awarded to No. 640, the property of Mr. W. O. Foster; the second prize of £10 to No. 622, and the third prize of £5 was awarded to No. 625, both the property of Messrs. J. and E. Crane. These sheep respectively received a commendation in the short-woolled class.

In Class 4: Shropshire Down Rams of any age.—The first prize of £20 was again awarded to No. 666, the property of Mrs. Baker, of Grendon; but the second prize of £10 was awarded to No. 659, the property of Mr. George Aeney, a sheep altogether omitted in the short-woolled class; and these judges highly commend No. 660, which takes the second prize in the short-woolled class; they also commend Mr. G. M. Kettle's, No. 654, and Mr. Thomas Horton's No's. 616 and 662; the latter sheep also unnoticed in the former class.

Class 5.—Pens of five shearling Shropshire Down Ewes.—In this class, the Messrs. J. and E. Crane take both the prizes, with pens Nos. 690 and 691 respectively. No. 690 was highly commended, and No. 691 commended in the short-woolled class. Mr. Holland's pen, No. 698, commended in both classes.

Class 6. — Shearling Rams of the Cheviot breed. —The first prize of £20 was awarded to No. 997, the property of the Hon. Col. Pennant, and the second prize of £10 to No. 611, the property of Mr. H. R. Sandbach, of Hafodunos, Llanrwst, Denbigh. These were highly respectable Cheviots, but not equal to many former shows.

Class 7.—Cheviot Rams of any age.—The Hon. Col. Pennant is again successful with No. 998, and Mr. H. R. Sandbach takes second prize with No. 664. These were really useful sheep of their kind, but not quite frame and substance enough to meet our taste—we have seen better.

Class 8.—Pens of five shearling Cheviot Ewes.—Col. Pennant and Mr. H. R. Sandbach again receive the first and second prizes in the same order with pens Nos. 1002 and 687 respectively; Col. Pennant's pen, No. 1001, receiving commendation.

Class 9.—Cheviot Ewes of any age.—In this class Col. Pennant takes both the prizes, and Mr. H. R. Sandbach receives two commendations with pens Nos. 1003 and 1004 respectively.

Class 10 is for the best pen of Shropshire Down Ewes; and both prizes are carried off by Mr. W. O. Foster, of Kinver Hill Farm, with pens Nos. 1012 and 1013 respectively, and Mr. G. M. Kettle received a commendation with pen No. 1008.

We are always anxious to do faithfully and carefully with the sheep classes, as believing them to be of paramount importance, owing to the variety of their breeds, and the many shades of difference in those breeds; we only desire that our notices may lead to inquiry and reflection. We know the good sense of breeders will supply all that is lacking. We would reiterate that we by no means advocate the breeding of sheep universally of the largest type, but we do advocate the full development, and the increase in size, proportions, and wool, of every established breed. We have no notion of pretty little Leicesters remaining such, or pretty little Southdowns continuing little pretty things. This is not progression. Every breed must be brought up to the culminating point, or at least the thing must be continuously aimed at—nothing less will satisfy us.

PIGS.

THE NUMBER OF PIGS SHOWN AT THE LAST SEVEN MEETINGS.

Meeting.	Large Breed	Small Breed	Total.	
Lewes........ 1852	48	96	144	
Gloucester 1853	38	108	146	
Lincoln 1854	45	92	137	
Carlisle 1855	29	55	84	
Chelmsford ... 1856	35	69	104	
Salisbury 1857	65	121	186	
Average of 6 years..	47	90	137	
			Special.	
Chester 1858	53	77	12	142

The show of pigs is not generally equal to that of last year; and, indeed, cannot be characterized as superlatively excellent, except in the small-breed classes. Mr. Harrison's large breed boar is admirable for his beautiful quality, combined with large dimensions. Mr. Hill's small-breed boar is extraordinary for symmetry, being compact, and with exceedingly nice flesh. In addition to those successful in winning prizes or commendations, Mr. Crisp's, Mr. Barker's, and Mr. Wilkinson's are very handsome and good. In the large-breed sow class, one of the best pens was Mr. Wainman's sow, suckling ten splendid pigs. Col. Towneley's small-breed sow is a very perfect animal; and the number of beautiful animals in this class is really astonishing. Mr. Bowly's black and white breeding sow pigs are very meritorious; and the superiority of the small-breed sow pigs may be judged from the circumstance of Mr. Mangle's real beauties being beaten out-and-out by those of Mr. Wiley and Mr. Watson. Black sorts have not come in for much favour at the hands of the Judges, though a few very good specimens were exhibited.

POULTRY.

THE PENS ENTERED ARE AS FOLLOW :—

Meeting.	Fowls.	Turkeys.	Geese.	Ducks.	Total.
Lewes 1852	58	1	5	11	75
Gloucester .. 1853	229	7	25	31	292
Lincoln 1854	245	7	11	32	295
Carlisle 1855	156	0	5	24	185
Chelmsford .. 1856	162	1	0	21	184
Salisbury ... 1857	127	4	5	20	156
Averages of 6 years	165	3	9	23	200
Chester 1858	130	5	6	26	167

The poultry show ends its career with a slight increase in every class, and it is quite time that the farmer's wives gave up looking for this collection of birds at the wrong season, and took their turn with poultry-fanciers at Birmingham or the Crystal Palace. This year there are sixteen instead of twenty-four classes; those omitted being the Dorking and Spanish cocks; one class instead of three of Cochins; two classes of game fowls, and two Malays omitted; one instead of three classes of Polands; while there is a class for "East India ducks," instead of the usual "any other variety."

Of course the Dorkings have the preference with business people, with Captain Hornby, king of the roost, in both the old and young classes. The Spanish fowls are very fine indeed, Mr. Fowler being fairly beaten. Game fowls are favourites as usual, and an unusually good show. The Bramah Pootras are good, and the golden-pencilled and silver-spangled Hamburghs better still. The show of ducks is particularly excellent, Mr. Fowler being justly pre-eminent with his beautiful Aylesburys.

SPECIAL PRIZES

OFFERED BY THE LOCAL COMMITTEE, FOR CHESHIRE CHEESE TO DAIRY-MAIDS AND CHEESE-MAKERS, AND FOR BUTTER.

We do not find (as one might almost expect) a booth full of buxom dairy-maids, and another occupied by competing makers of cheese; neither are the exhibitors of the samples of cheese and butter busily gratifying the public "taste" with cheese-testers and pats of the yellow unguent.

It has been said that if each judge tasted half-an-ounce of every cheese, he must have eaten 24 lbs. weight! but there were really 194 entries, of four cheeses each—and half-an-ounce of each lot amounts to six pounds. But, of course, many a specimen was discarded at once, from its appearance and make, the eye and the thumb being sufficient, except in nice cases, without the delicately-discerning tongue and palate.

We shall have something to say about cheese-making when we come to review the implement department of the show; but a few words are required here, as supplementary to our already published long list of prizes. Sixty-one competitors entered the lists for the champion prize of £100. Would a coloured or uncoloured cheese, a Cheshire or Cheddar be triumphant? and it turns out that a Cheshire man has won the honour, and with four coloured cheeses, made by an apparatus of Cheshire invention. Mr. Geo. Willis' weighed between 80 and 90 lbs. The collection of cheeses was truly wonderful, and represented the produce of a vast number of cows, and, in addition to the handsome prizes, a great many commendations and high-commendations were deservedly bestowed. Two good prizes were also awarded to the best and second-best tub or crock of butter, of not less than 20 lbs. in weight. It is to be hoped that these premiums for dairy produce will not altogether be lost sight of at future meetings: they may very well take the place of the poultry prizes we are relinquishing; at any rate, it is certain this special rewarding of the staple production of which any neighbourhood is famous (as, for instance, the flannels in South Wales,) is productive of great benefit. We will undertake to say that the cheese-makers and dairy-maids will be benefitted by their recent honours—as long as they continue to milk the kine and set the curd.

REPORT ON THE IMPLEMENTS.

The numerical table of "entries" we have hitherto given has not shown the actual number of articles, but only the implements of different kinds: to convey an idea of the vast magnitude of the exhibition, the entire numbers are here subjoined. For the sake of comparison with former years, take the number of exhibitors and some of the entries taken as on former occasions:—

	Lincoln, 1854.	Carlisle, 1855.	Chelmsford, 1856.	Salisbury, 1857.	Chester, 1858.
Exhibitors ..	130	118	147	154	193
Entries of "new implements".	101	107	102	180	240
Of steam engines, portable or fixed	..	..	84	78	43
Thrashing machines .	..	..	..	66	50
Ploughs ...	..	..	..	137	40

The actual number of articles entered at Chester was as follows: Steam ploughs or cultivators, 19; traction engines, 2; steam engines, 115; thrashing machines, 88; corn dressing machines, 68; screens, 25; chaff cutters, 200; mills, 59; crushers, 69; oilcake breakers, 83; bone mills, 13; turnip cutters, 65; pulpers, 97; churns, 91; cheese-making apparatus, 13; cheese presses, 53; drills, 101; manure distributors, 15; horse hoes, 57; hay machines, 15; horse rakes, 35; reaping machines, 17; carts and waggons, 56; ploughs, 151; subsoilers, 22; cultivators, &c., 69; clod crushers and rollers, 47; harrows, 89; draining tools, 25; brick and tile machines, 14; miscellaneous, 1,675; total, 3,438 articles.

We may commence our investigations with the

THRASHING MACHINES.

Three judges, assisted by the engineering judges and some amateur mechanicians, were five days hard at work in ascertaining the capabilities and merits of nearly fifty machines subjected to trial. We can only, of course, give such particulars as we could glean during the trials, and after the determination of the awards, and must leave all descriptions of the machines themselves, as requiring more attention than it was possible to give them. The working results, however, will come hereafter in the judges' report.

The labour which has been bestowed in testing the machines cannot be appreciated unless we give a list of the different points examined. A schedule was made, with a number of columns, headed as follows, and filled up with the judges' observations, numerals being taken to represent the comparative excellence of each process. We would here premise that long consideration was taken in assigning what numbers at the head of the column should denote "perfect work." The order of the points was thus: Name of exhibiter—Stand—Article—Time in thrashing 150 sheaves of wheat—Horse-power for one minute—Real horse-power—Clean-thrashed, 100—Clean-shaken, 70—Well-dressed, 70—Cavings free from corn, 70—Chaff free from corn, 50—Chaff free from cavings, 20—Corn uninjured, 50—Barley hummelled—Straw unbroken, 20—Chaff free from seeds, 20—Portability—Price; besides which, the engineers gave their opinion on the simplicity of construction, durability, and excellence of workmanship.

To show what the application of severer tests will do, it may be observed that at Carlisle, all the machines were considered to have thrashed perfectly, and the clean-shaking, riddling, &c., were thought to be more favourable than the same operations at the present trials, after three years' improvement in the machines. A quantity of the cavings and chaff from every machine was put through Howard's chaff-screen, the quantity of grain extracted ascertained, the dressed corn run down Boby's screen, and the respective products measured.

In Class 9—Portable combined thrashing-machines, for preparing corn for market—17 selected machines were tried with wheat, and the more successful of them still further with barley. The machine that performed perfectly, in every process stated above, would obtain 470 points; but so faulty were all, either in one respect or another, that the best qualified machine of all only came up to 425 points. In what particular respects, will it be supposed, are machines generally found defective? We are informed that of sixteen machines, only one knocked out the corn cleanly, and six nearly so; only one thrashed without injuring the grain, and ten nearly so; not one produced the straw quite unbroken, but twelve nearly so; not one could shake the straw perfectly clean of corn, and only six nearly so; not one riddled without carrying over corn among the cavings, and but five nearly so; not one had the chaff free from seeds, but four nearly so; not one machine dressed the corn perfectly, and only two nearly so; four blew out their chaff free from corn, and eight nearly so; while three produced chaff clear of cavings, and five nearly so. That is, the general performances of thrashing-machines rank in merit as follows; chaffing and producing whole straw are done the best; next, the corn uninjured; only half the machines are respectable in clean thrashing and nicely separating the cavings from the chaff; scarcely more than a third shake anything like cleanly; less than a third deliver the cavings without wasting a great deal of corn; a fourth of the machines make chaff tolerably free from seeds; and less than one-fifth of them do the finishing-dressing at all well. As regards simply the performance of the different processes, we believe that Clayton's and Hornsby's were so closely watched that a microscopic examination of the products must have been necessary to distinguish any difference, excepting that one machine (as bystanders could perceive of the trials) did the best finishing-dressing, and the other the best rough winnowing. Foster's machine came very near them; Ransomes and Sims' but a little way behind in excellence; Humphrie's, Garretts', Holmes', Barrett Exall and Andrewes', pretty fair work; and some of the remainder very far behind-hand. But the machines were also tested with barley; and the price—and more important still—the power required to drive them, as well as the comparative excellence of the construction and the clear condition of the shakers and riddles after working, were all taken into account in striking a balance of advantage in favour of the prize and commended machines. In power required, Ransomes and Sims', Humphries', Foster's, Clayton and Shuttleworth's, Barrett and Exall's, Garrett's, Cambridge's, Gilbert's, and Robey and Scott's, were all meritorious.

We cannot make special remarks on the several machines, but in adding a word or two on the mechanical peculiarities of some that came under our notice, let it be understood that we by no means wish to favour such by selection, or ignore the merits of others. The workmanship of Clayton and Shuttleworth's machine is admirable in every respect: the working-parts are simplified by having only one crank-shaft for actuating the five box-shakers, while the effective jumping at both ends is still retained by three of the boxes rocking at one end, and two at the other. However, we counted no less than nine straps. The rotary screen is improved by having blades fixed inside, passing through the corn with a combing action. The two shogging-boards are nicely balanced by attaching the riddle to the upper board, making the machine very steady; but there should be a greater space beneath the caving riddle to take the chaff and corn which drop through. The riddle is of perforated wood, the round holes bevelled off at the top, and it appears to act well. An ingenious riddle also, used in this machine, made of incline wood slats, with zinc slats crossing them, showed great capacity and perfect action. We much admired the beautifully-finished working-parts of Hornsby and Son's machine. Only one screw for feeding the riddles is now employed, and revolving an inch-and-a-half above the bottom of its fixed slanting trough, it does not grind the corn. The barley-hummeller and smutter are one shaft. Across the top of the machine is a very simple and excellent arrangement. Owing to the blast being directed up through the Venetian slat riddle, a number of perforated riddles are requisite to dress the chaff. In Ransomes and Sims' machine, we have another contrivance for avoiding the shocks and wear attending the use of shogging-boards, namely Brinsmead's rotary shaker, which while dancing the straw over a series of revolving combs, passes the corn back underneath to the riddle. It worked very well, with the assistance of a singular-looking oscillating rake to divide the lumps of straw, and showed but slight tendency to wrap. The riddle is wood, fluted and perforated. There were only five straps; the elevators driven by spur-wheel and pinion. The drum has the new patent screw-beaters. Oliver Maggs and Co. had a skaker on a somewhat similar principle; a riddle of angle laths crossing upon the top of diagonally-arranged square laths, and a very remarkable arrangement of the five straps round the riggers, by which fewer of the continually-breaking and troublesome straps are required. The bearings were fitted with spherical brasses, which, adjusting themselves accurately to the movements of the shaft, prevent gulling, and save the delays and expense consequent upon heating and excessive wear. Tuxford and Sons have wood bearings (like several other machines) for their box-shakers, and cast-iron instead of brass for the smaller crank bearings; the riddles are so hung that the amount of slope can be instantly altered to suit the free or clogging character of the stuff, and the quantity passing; and the arrangement of the finishing dressing-machine and barley-horner is very compact—the whole machine being constructed to run with five straps, and as few riggers as possible. In their table-shaker slings there is an improvement, being a means of keeping them nicely in place. Ruston, Procter, and Burton have a lever motion, giving a vertical jump as well as ordinary rocking to their shakers, a great length of cane-riddle surface, a rotary screen, and a simple arrangement of barley hummeller, smutter, and blast, all on one shaft, driven by six straps. Humphries' machine is very compact and portable; the riddle is of mahogany, or other hard wood, perforated with holes in a slanting direction, the holes bored upward with a taper auger, so as to be widest at bottom, and thus prevent choking; the riddle is in steps, to break lumps of stuff by the fall, and obviate the disarrangement of the riddle by expansion from damp; the shakers are boxes with iron slats. A little screen, with revolving rubbers for taking off capes or white-heads, is a good appliance in this machine. There are seven straps. Robey and Co. have adopted the travelling endless web, instead of the shogging board, with a considerable economy of power; the canvas, with a belt along each side, has strips of wood across it at intervals. Millington's corn screen is attached, the whole having five straps. One of their machines has eccentrics in boxes at the side of the machine, for driving the shogging boards, and the corn from the board falls directly down upon the riddle. In Haywood's machine both the shogging boards and even the finishing riddles are vibrated by connecting rods and levers from the rocking-bars of the shakers —an objectionable means of avoiding riggers, shafts, and bearings. Savory's machine has also a novelty in the table shaker (of slats and cane), having a shogging board attached underneath, and jumping with it. The riddle, made in four steps, is of wooden slots, with cane strips running lengthwise above them. A smutting and cleaning machine is used, and all worked by four straps. In Fowler and M'Collin's machine we noticed a horizontal sling or radius-bar, instead of guides, to hold the shogging-board from sideway shaking. Garrett and Son's box-shakers are of very peculiar form, providing a fall for the straw before it reaches the end: the wooden slats have wires passing lengthwise through them; the drum and other shafts are driven by eight straps from an intermediate shaft, which thus relieves the drum-bearings of much friction. In J. Gilbert's shaker the wooden slats are horizontal, with wires crossing through them: the drum-shaft is prolonged in a singular manner to drive the elevators by a small rigger and band. Hart and Gibbons drum-shaft is prolonged about twenty inches, with three riggers upon it—which is certainly an objectionable arrangement. The shaker-boxes have sheet-iron slats, with several wire-rod inclines, for holding up and separating lumps of straw. The riddle (wood slats across, with beech-strips lengthwise above them) projects at the end of the machine, and the riddles of a small winnowing machine are affixed to it underneath. Brown and May have a very peculiarly-shaped riddle, consisting of wood perforated, and angular gutters cut across the top, presenting a series of inclines to the progress of the stuff. Cambridge's is an exceedingly good riddle—Venetian wood slats across, with half-round cane strips running lengthwise on the top.

We much regret that the judges of thrashing-machines were called upon to perform other duties as well; as it was important that they should be able to describe the peculiarities in mechanical construction, the processes performed, the comparative merit of the performance, the power, price, &c., in the case of every machine selected for trial. We do not know if the public are likely to have the judges' report to tell them how many qualities or sorts of corn and refuse are made by each machine; but many of these particulars are beyond the grasp of the journalist, while others are to be ascertained in the various makers' catalogues. It is gratifying to find so many "portable combined machines with finishing-dressing machines," when we remember how at Carlisle, three years ago, appeared the first of the kind, then quite ahead of the Society's prize-sheet.

It is not wise to deal captiously with decisions arrived at by arbitrators appointed for the purpose; but we may be allowed to express an opinion that, when two or more machines are found to come very closely together in the final estimate of their merit, it is only fair to suppose the possibility of trifling errors in one's judgment about so many points and processes, and divide the prize between competitors so nearly equal. Again, in a case where a most satisfactory performance is obtained from a machine appearing to have been almost copied from another more famous one with which it is in competition, it can hardly be fair for the judges to interfere between the respective exhibitors, and prefer the original machine merely because it is an original and not a copy. We think they should just determine the respective merits, and leave protests to be made by the competing makers, if so minded. Excepting these two much-talked-of inadvertencies, we believe the judges to have discharged their arduous labours in a business-like, able, and impartial manner.

STEAM ENGINES.

The mechanical time run by each of the PORTABLE EIGHT-HORSE ENGINES, with 14lbs. of coal per horse-power, was as follows:—

	HOURS.	MINS.
Tuxford and Sons	3	35
Clayton, Shuttleworth, and Co.	3	7
Hornsby and Sons	2	40
Ransomes and Sims	2	35
Brown and May	2	35
Haywood	2	0
Fowler and McCollin.	1	43½
Foster	1	36
Clay	1	29
Butlin	1	14½
Barrett, Exall, and Andrewes (*disqualified*).		
Garrett and Sons (*disqualified*).		

PORTABLE TWELVE-HORSE ENGINES, with 14lbs. of coal per horse-power:—

	HOURS.	MINS.
Tuxford and Sons	2	57
Clayton, Shuttleworth, and Co.	2	41
Ransomes and Sons	2	29
Hornsby and Sons	2	25

FIXED ENGINES:—

	HOURS.	MINS
Barrett, Exall, and Andrewes	3	0
Hornsby and Sons	2	9
Ransomes and Sims	2	7
Ferrabee	2	2
Clayton, Shuttleworth and Co.	1	51
Johnson (of Chester)	1	51
Brown and May	1	45
Maggs	1	28
Nash	1	25

Having given the times run by the highest-class engines, we need do little more now than name some out of the many exhibitors, with just a note or two on peculiarities of construction.

Haywood's portable engine has a vertical cylinder attached on one side of the boiler, with the crank shaft mounted upon a steam chest; and all the working parts are boxed under cover, but easy of access. No less than three three-horse and four two-horse portable engines were exhibited by this maker.

Ransomes and Sims showed a twelve-horse engine, fitted with reversing gear, as well as ten-horse, eight-horse, and seven-horse engines, having their simple and admirable locking gear.

Robey and Co.'s engine has a three-inch water-space underneath the ash-pan, a very safe arrangement, and allowing the sediment to be blown out of the boiler by a cock for the purpose.

Smith and Ashby's two-and-a-half-horse power portables are exceedingly neat, simple, and well made, with flue and tube boilers. Price only £70. They will do the work of three horses, and are so compact as to pass through a four-feet doorway.

Barrett, Exall, and Andrewes have also a two-horse power portable engine, made to drive a small combined thrashing machine.

Cambridge's two-and-a-half horse engine is made with a vertical cylinder. Price £80.

Bach showed an engine having the singular arrangement of the pump being worked by a prolongation of the piston-rod acting as a plunger.

Hornsby and Sons' engines are so well known, that we can only express our admiration of their perfect workmanship. The twelve-horse engine has reversing gear, constituting a form of engine likely to be used very extensively, now that steam culture is becoming practically available. Clayton and Shuttleworth's exhibition of portable and fixed engines of different powers was an extraordinary spectacle of first-class work, including their well-known patent engine, with steam jacketed cylinder in the smoke box. Nicholson's 2½-horse power portable is an admirable little engine, price only £70, doing all the hard work connected with stall-feeding, and capable of driving a small thrashing-machine. Hart, Gibbons, and Co. exhibited a 3½-horse portable engine; Wheeler and Co. a 3-horse power portable; Maggs and Co. a 2½-horse power portable engine; and Bentall and also Turner 2-horse power portables; these, indeed, forming one of the most noticeable features in the stands. Ruston, Proctor, and Co's. 8-horse engine, with reversing motion, is very simple in arrangement and good construction. Tuxford and Sons' engines, with vertical cylinder, inclosed in a house, and either with tubular or flue and tube boilers, are too well known to need further notice here; this year, they have also produced a horizontal-cylinder engine (with cylinder in a steam-jacket above the fire-box), for supplying customers at a somewhat lower figure. Williamson and also Wood and Sons showed 3-horse power portable engines. In Maggs' 2-horse engines the piston-rod works in the pump-barrel instead of guides.

In addition to the massive traction-engines of Burrell and of Tuxford and Sons, fitted with the endless-railway, there are other engines, constructed for travelling along common roads. Burrell's application of the endless-rails to ordinary thrashing-engines, so that the engine propels itself, while a horse in a pair of shafts steers it, is familiar to our readers. Garrett and Sons have a double-cylinder 12-horse engine, which drives one of its travelling-wheels by toothed gearing, and is steered by a horse in shafts: it is also fitted with the indispensable accessary of a break. Clayton and Shuttleworth showed a 7-horse single-cylinder engine, fitted with reversing motion, and toothed wheels for driving the travelling wheels, the steerage being very readily effected by a wheel on a transom in front. The price, £350, must be rather a high figure.

CHAFF-CUTTERS, CAKE-BREAKERS, TURNIP-CUTTERS, &c.

A considerable number of cutters were tested, the length of the cut being ascertained by putting strips of cardboard, about an inch and a half wide and a couple of feet long, amongst the hay or straw, as the stuff often comes obliquely to the front, and makes chaff longer than the ⅜ths of an inch specified. After the preliminary trials, the several chosen machines were worked for five minutes each, the power being taken by the dynamometer invented for the purpose. Richmond and Chandler's, with 18,500 revolutions, cut 24½lbs. of chaff; Turner's, in 20,050 revolutions, cut 22½lbs. of chaff; Smith and Ashby's, in 19,800 revolutions, cut 20¾lbs. of chaff; Page and Co.'s, with 18,575 revolutions, cut 24½lbs. of chaff; Mellard's, in 18,420 revolutions, cut 15lbs. of chaff; Hill and Smith's, with 20,410 revolutions, cut 23lbs. of chaff; Barrett and Exall's, in 16,100 revolutions, cut 19½lbs. of chaff.

Each of the oilcake breakers worked by steam-power was required to break three different sizes of cake, three minutes being allowed for the breaking of the first size, two minutes for the second, and one minute for the third size. The results were as follows:

	MINS.	REVOLUTIONS.	LBS.
Ransomes and Sims*....	3	98,600	118 coarse. 40½ fine.
	2	Dynamometer failed.	—
	1	20,820	72 coarse.
Barrett, Exall, and Co...	3	72,800	154½ ,,
	2	(no register.)	117 ,,
	1	16,575	59½ ,,
W. L. Fisher..........	3	114,730	147½ ,,
	2	52,680	153 ,,
	1	18,140	68 ,,
W. N. Nicholson	3	38,300	129 ,,
	2	16,720	93 ,,
	1	6,320	88½ ,,
E. H. Bentall..........	3	124,350	164½ ,,
	2	46,110	165½ ,,
	1	27,196	124½ ,,

* This machine separated the coarse from the fine.

The time allowed for working each root-cutter or pulper was, in some cases, three minutes, in others two minutes, according to the size or description of the implement. The results are:

	MINS.	REVOLUTIONS.	LBS.
Ransomes and Sims (with Biddell's patent horizontal cutter) — small cutter..............	3	23,500	93½ ,,
Ditto—large slicer......	3	16,030	145½ ,,
Ditto—pulper	3	22,195	79 ,,
Warner & Sons—cutter .	3	25,400	167¾ ,,
Samuelson—large cutter (tried twice)	3	9,220 10,700	116 ,, 98¾ ,,
Ditto—small cutter	3	5,790	37¾ ,,
Ditto—Brewer's disc root-pulper..............	3	11,470	36¼ ,,
Goulding & Co.—pulper.	3	30,420	100 ,,
Bentall—pulper........	3	23,100	72 ,,
Carson—cutter	3	14,700	138¾ ,,
Samuelson—pulper	3	30,150	62 ,,
Woods & Son—pulper..	2	24,300	52½ ,,
Ditto—mincer	3	18,680	66 ,,
Barnard and Bishop—pulper..............	3	31,945	89 ,,
Ditto—slicer	2	11,520	142¾ ,,
Picksley & Sims—slicer.	2	9,300	97¼ ,,
Fry—pulper	3	38,400	80¾ ,,

GENERAL EXHIBITION.

In the trial yard were many very interesting arrangements of machinery united by intermediate shafting, so as to be driven by one engine; as Ransomes and Sims', Bentall's, Haywood's, Nicholson's, Smith and Ashby's, Johnson's, for cutting chaff, breaking oilcakes, crushing linseed, oats, or beans, and even steaming the food so prepared. We saw, too, Hayes' straw elevator; Chamberlain's rotary brick-making machine, producing 15,000 to 20,000 bricks a day; Crosskill's powerful bone-mills, crushing whole skulls and horns; and Burns' singular bone-dust mill for rasping instead of breaking the bones. Patterson's compound-action grinding-mills, and Tye's flour-mill, were also attracting attention. Around the yard were the sheds, in which were erected Barrett and Co.'s fixed barn-works, with separate winnowers; Garrett and Son's fixture thrashing-machine (self contained); Hornsby and Son's one-fixture machine, self contained, and another with separate winnowers; Sparke and Co.'s saw-table; Clayton and Shuttleworth's fixed barn-works, self-contained, and another set with separate winnowers.

In our walk through the stands we must be brief, but new machines and implements shall be occasionally noticed in our columns—perhaps a better way of presenting them to the farmer's consideration, than by stretching this report beyond reasonable limits. Richmond and Chandler's chaff-cutters have undergone considerable improvement in construction, partly to enable the machines to be packed in closer compass for exportation. The pieces can be most readily put together, and the steel mouth-plate is made separate from the rest of the box, so as to be easily renewed when worn. Warner and Son, in addition to their famous assortment of pumps, &c., have a very compact horse-work with pump on the same frame—a well-conceived arrangement for many purposes; their turnip and mangold grater is also an effective machine.

Ransomes and Sims exhibited their various first-class ploughs, adapted for all descriptions of work, from 12-inch heavy-land ploughing to the light-land ploughing that can be done by a pony; some strongly and simply-constructed scarifiers; a good grubber; two-furrow and turnwrest ploughs; Lord Beauclerc's singular subsoiler; Cotgreave's wonderful trenching plough; Biddell's bean-cutters, oat-mills, and novel turnip-cutter, in which the hopper rotates above fixed, horizontally-disposed, "bomerang-shaped" knives, forcing down the roots upon the knives by the screw-wedge partitions of the hopper.

Sawney showed his well-known cheap and yet most comprehensive dressing machines; a new brush-cleaner, for the screen; and a very useful combined weighing machine and sack-lifter.

On Burgess and Key's stand, of course, the great object of interest was the reaping machine; but we merely name it on the present occasion, as this harvest's experience of reapers will be from time to time the subject of further remark. Tools, churns, pumps, are here in great variety—two especially noted objects, viz., the flexible-pipe rotary pump, and the new self-registering chronometrical thermometer, valuable for gentlemen's conservatories, forcing or orchid houses, and for innumerable scientific purposes.

Pearson and Co.—Various sorts and sizes of washing and wringing machines, and washing machines and churns combined.

Fisher's chaff-cutter has a riddle attached, for sifting the chaff as it falls from the knives. His horse-work is well contrived, and boxed in so as to be out of the way of injury.

Banks.—Iron hurdles; gates; a cart, with turnip-cutter attached to the axle, for slicing about a field, invented by Caldow and M'Kinnell; mills; stable-fittings, &c.

Perreaux and Co.—Patent india-rubber valves, on a principle which promises to effect almost a revolution in the manufacture of pumps and fire-engines.

Hickman.—Cheese-presses, curd-breakers, milk-pans, &c.

Fowler.—Assortment of pumps, garden engines, hydraulic rams.

Smith and Ashby's chaff-cutters are characterized by the strength and simplicity of the parts, working with few wheels, and having different-sized gear put on for cutting different lengths of stuff. The shaft which actuates the rollers is passed through the box immediately behind the mouth-plate; and its rotation acts as a friction roller, facilitating the egress of the fodder—an arrangement reminding us of Clayton's brick machine, where rollers form the orifice. The haymaking machine of the Stamford firm also maintains its superior position.

Crosskill's carts and machine-made wheels and axles are as complete as ever. His clod-crusher and Archimedean root-washer are still the best of their kinds. The bone-dust mill, for rasping up crushed bones into dust, is peculiarly efficient, and likely to be useful.

Holmes and Son showed their drills, manure-distributors, clover and seed-sheller, &c.

Samuelson's was a very large stand of turnip-cutters, root-pulpers, turnip-slicers with plates to fit in for cutting into strips for lambs, or pulping, as may be required; combined chaff-cutter and root-grater, for mixing off the pulp at one operation; chaff-cutters of all sizes; roller mills; oilcake-breakers, the upper pair of rollers driven at reduced speed, with a good screw-arrangement for setting to different qualities of work; lawn mowing machines, &c., &c. Ransome and Co. sent washing and wringing machines, churns, sausage-mincers, and little machines for numerous culinary purposes. Boby had his unsurpassed corn-screen, and corn-dressing machine with the screen attached. Barrett, Exall, and Andrews' most striking article is the endless-band saw; they also show chaff-cutters, haymaking machines, barley-avellers, hayrakes, &c., and the safety boxed-in horse gear and combined intermediate motion. Cambridge's press-wheel roller is conspicuous on his stand, also his sets of chain-harrows with self-expanding apparatus.

A CATALOGUE
OF THE
IMPLEMENTS EXHIBITED.

There are comparatively few of the visitors to our national meetings who study very closely the catalogues they procure at the time. Fewer still, perhaps, refer to them hereafter. A yet larger class never see these useful guides—or at least they never would do so but for our custom of running them through our columns. There have been none that will be turned with more interest than this record of the Chester Meeting. As an Exhibition of Implements it has been altogether unrivalled. There is scarcely an entry in the following list but has, in some way or other, received confirmation of its merit and usefulness. The reader has accordingly only to suit himself. Anything he may yet require, from a cart-bridle to a steam-plough, is ready to his hand. We can introduce him at once to people who will do him justice.

JAMES HAYWOOD, jun., of the Phœnix Foundry and Engineering Works, near Derby.

A seven-horse power portable steam engine, price 215*l.*, invented, improved, and manufactured by the exhibiter; a portable combined thrashing and finishing machine, price 110*l.*; a portable grinding mill, with 24-inch Derbyshire Peak stones, price 22*l.*; (new implement) a three-horse power portable steam engine, with vertical cylinder, price 105*l.*; ditto, price 75*l.*; ditto, price 85*l.*, governors 5*l.* extra, shafts 30s. extra; (new implement) a two-horse power portable steam engine, with vertical cylinder, price 85*l.*; ditto, price 65*l.*, governors 5*l.* extra, shaft 30s. extra; ditto, price 70*l.*; ditto, price 65*l.*; a two-horse power thrashing box, price 16*l.* 10s., if with straw shakers, blower, and elevators, for bagging the corn 35*l.*, travelling wheel, 5*l.* extra; a portable grinding mill, with 18-inch Derbyshire Peak stones, price 17*l.* 10s., all invented and manufactured by the exhibiter; (new implement) two sizes of hay-cutting machines, price 16*l.*, and 10*l*, patent stop motion, 15s. extra, pulley, 12s., change wheels to cut different lengths, 6s. per pair, invented and manufactured by Richmond and Chandler, of Salford; a patent root pulper, price 6*l.* 6s., invented and manufactured by E. H. Bentall, of Heybridge, near Maldon, Essex; several specimens of a cast-iron ornamental garden chair, oak pattern, price 1*l.* 10s.; two specimens of a cast-iron ornamental garden chair, octagon shape, price 7*l.* 10s.; three specimens of a cast-iron ornamental single garden chair, price 17s. 6d.; three specimens of a cast-iron ornamental circular table, with revolving top, price 1*l.* 15s., all invented and manufactured by the exhibiter; two pair of Medici vases and pedestals in cast-iron, price of vases, 3*l.* 10s. each, pedestals 2*l.* 10s. each; a pair of cast-iron ornamental vases and pedestals, No. 1, large, price of vases 2*l.* 2s. each, pedestals 21s. each; two pair of ornamental vases and pedestals, in cast-iron, price of vases 1*l.* 10s. each, pedestals 21s. each; a pair of cast-iron ornamental vases and pedestals, price of vases 1*l.* 5s. each, pedestals 30s. each; three cast-iron ornamental vases in imitation of basket work, price 3*l.* each; a pair of cast-iron ornamental vases and pedestals, No. 11, price of vases 1*l.* 15s. each, pedestals 30s. each; and an assortment of cast-iron ornamental fruit plates, price 2s. 6d. each, all manufactured by the exhibiter.

THOMAS BIGG, of Leicester House, Great Dover-street, Southwark, Surrey.

Several specimens of his sheep-dipping apparatus, price from 3*l.* to 14*l.*

RICHMOND AND CHANDLER, of Salford, near Manchester Lancashire.

Two sizes of a very economical chaff-cutting machine, price 3*l.* 15s., and 4*l.* 10s.; a Royal Society of England prize chaff-cutting machine, price 7*l.*, (it carried off the first prize for hand power at the last trial of the Royal Agricultural Society of England at the Carlisle meeting); an improved chaff-cutting machine, for hand or power, price 10*l.*, with pulley 9s. extra; a registered chaff-cutting machine, price 15*l*, with pulley 12s. extra; (new implement) a new chaff-cutting machine, price with pulley 16*l.* 12s.; a new litter-cutting machine, price 10*l.*; two sizes of a corn-crusher, price 5*l.* 5s. and 6*l.* 10s.; a corn-crusher for power, price with pulley 10*l.* 12s.; a linseed and oat mill, price 6*l.* 10s.; a linseed and oat mill for power price fitted with counter shaft and 18-inch pulley 14*l.* 15s.; an improved steaming apparatus, price 6*l.* 9s.; a prize root washer, price 4*l.* 4s., all invented, improved, and manufactured by the exhibiters; a patent sack holder, price 1*l.* 3s.; and a patent wheel sack holder, price 1*l.* 12s., invented by Henry Gilbert, of London, improved by Joshua Cooch, of Harleston, and manufactured by the exhibiters.

JOHN WARNER AND SONS, of Crescent, Jewin-street, London.

(New implement) a turnip cutter, price £4 10s., fitted with rigger £1 1s. extra, improved and manufactured by the exhibiters; (new implement) a double-action force pump, on barrow, with branch pipe and suction rose, price £8, air vessel £1 15s. extra, invented and manufactured by the exhibiters; an overshot water wheel, price £50; a frame wheel and pinion, for horse or other power, price £38 10s.; a cast-iron frame, price £20 18s.; a cast-iron engine frame, price £10 10s.; a cast-iron engine frame, wheel and pinion, and single crank, price £18 10s., all improved and manufactured by the exhibiters; an improved engine frame and pump, with copper air-vessel, price £18 10s., and an improved cast-iron frame, price £27 10s., both invented and manufactured by the exhibiters; a single 3-inch and full-way pump, price £11, improved and manufactured by the exhibiters; two sizes of double brass barrel force pump, prices £42 10s. and £22; an irrigator, with two 6 in. pumps, crank, &c., price £45; a double-barrel 5-in. liquid manure or sewage pump, price £27, all invented and manufactured by the exhibiters; a brewers' or other force pump, price $3\frac{1}{4}$ in. £11 10s, 4 in. £12 5s, improved and manufactured by the exhibiters; a full-way double-barrel pump, price 3 in. £19, full-way treble-barrel pump, price 3 in. £28, both invented, improved, and manufactured by the exhibiters; a cast-iron pump case, price £6; a cast-iron working barrel, price 3 in. £1 8s.; a cast-iron suction rose, price for $2\frac{1}{2}$ and 3 in. pump 7s.; a garden pump, price $3\frac{1}{2}$ in. £3, all manufactured by the exhibiters; a $2\frac{1}{2}$ in. cast-iron lift pump, price £1 14s; several sizes of patent cast-iron lift pumps, price £2 8s. to £3 3s., invented and manufactured by the exhibiters; several sizes of cast-iron lift and force pumps, price £3 3s. to £5 5s.; a patent short-barrel cast-iron lift pump, with fixed tail-piece, price £1 10s. to £3 7s., all invented and manufactured by the exhibiters; (new implement) two specimens of turnip and mangold grater, price £4 10s., improved and manufactured by the exhibiters; a patent cast-iron straight-barrel pump, price £2 10s.; (new implement) a $4\frac{1}{2}$ in. patent liquid manure pump, on legs, price £3 3s., copper £3 19s., other sizes less prices, invented and manufactured by the exhibiters; a 3 in pump, on square tail, price £5 11s., and a $2\frac{1}{2}$ in. double-barrel pump, for deep wells, price £10 8s., both manufactured by the exhibiters; a 3 in. strong lift and force pump, price £7 9s., improved and manufactured by the exhibiters; a 3 in. patent strong lift and force pump, on plank, price £7 5s., invented and manufactured by the exhibiters; wrought-iron barge or agricultural pump, price 4 in. £3 6s., invented by the exhibiters; a copper pump, price £3 4s.; a patent beer engine, price £2 12s.; a garden engine with exhibiters' registered spreader, price £3 6s., invented and manufactured by the exhibiters; a garden engine, in galvanized iron pail, price £4 4s.; different sizes and specimens of oak tub garden engine, with spreader, price £6 18s. to £4 18s.; a patent conservatory pump, price £2 12s.; a portable fire engine, price £5, all invented and manufactured by the exhibiters; a 10-gallon galvanized iron tub garden engine, price £2 19s., manufactured by the exhibiters; a metallic string, price 6d. to 1s. 4d. per lb.; a board with syringes, price 9s., 19s., and 20s.; a fumigator and bellows, price 10 in. 15s. 6d., both manufactured by the exhibiters; a small hand fire engine, price £3 3s.; a conservatory pump, or portable garden engine, price £1 7s. 6d.; a fire engine, price £24; a swing water barrow, price £3 3s.; fountain designs on board, price 5s. to 25s., all invented and manufactured by the exhibiters; a board of steam work, price 21s. to 23s. a set; an alarm bell, price £5 15s.; a 24 in. bell, price £27; a set of sheep or cattle bells, price 12s. and 18s. per set; a set of plumbers' cocks on a board, price 4s. to 20s., all manufactured by the exhibiters; a set of high-pressure cocks, on a board, price 4s. to 15s., invented and manufactured by the exhibiters; a $\frac{1}{2}$ in. India-rubber and canvas hose pipe with spreader, price £1 17s. 6d.; a straight branch pipe and registered spreader, price 7s.; an improved branch pipe with internal cock, price 9s., manufactured by the exhibiters; a taper branch pipe, with exhibiters' spreader, price 6s. 6d., improved and manufactured by the exhibiters.

GEORGE WILLIAM ROBINSON, of Barton-upon-Humber, Lincolnshire.

(New implements) two sizes of a patent clod-crusher and wheat roller, price 17*l.*, and 15*l.* 10s., invented, improved, and manufactured by the exhibiter.

RANSOMES and SIMS, of Ipswich, Suffolk.

(New implement) a twelve-horse-power double cylinder portable steam engine, price, without heater, 290*l.*, with heater, 300*l.*; (new implement) an eight-horse-power portable steam engine, price, without heater, 215*l.*, with heater, 225*l.*; a horizontal direct-action ten-horse-power fixed steam engine, price, engine only, 120*l.*, manufactured by the exhibiters; (new implement) a patent steam boiler, of ten-horse-power, price 155*l.*, wrought-iron chimney, 25 feet high, 19*l.* extra, lagging with wood, 16*l.* extra, invented by Biddell and Balk, of Ipswich, and manufactured by the exhibiters; (new implement) a portable five-horse-power thrashing machine, on four wheels, with Brinsmead's patent shaker, price 110*l.*; a steam-power thrashing machine, on two wheels, price 60*l.*; a portable combined steam-power thrashing machine, price 108*l.*; (new implement) a portable combined double-blast steam thrashing machine, price 130*l.*; (new implement) a corn-dressing machine, price 9*l.*—all invented, improved, and manufactured by the exhibiters; (new implement) a corn dressing machine, price 15*l.*, manufactured by the exhibiters; (new implement) a large steam-power chaff cutter, price 24*l.*, invented, improved, and manufactured by the exhibiters; a patent corn chaff cutter, price 5*l.* 5s., invented and improved by G. A. Biddell, of Ipswich, and manufactured by the exhibiters; (new implement) a flour mill with 3-feet stones, on an iron stand, price 55*l.*, invented, improved, and manufactured by the exhibiters; (new implement) a bruising mill, on an iron stand, price 10*l*, if with patent bean cutter, 2*l.* 10s. extra, manufactured by the exhibiters; (new implement) a cake breaker, price, with crotch irons and bolts, 11*l.* 10s., invented, improved, and manufactured by the exhibiters; (new implement) a cake breaker for cattle, sheep, and lambs, price 4*l.* 10s., manufactured by the exhibiters; (new implements) several sizes and specimens of patent root cutters, price from 8*l.* to 5*l.* 5s., invented by G. A. Biddell, of Ipswich, and manufactured by the exhibiters; two sizes of Gardner's single-action turnip cutters, price 4*l.* 10s. and 5*l.* 10s., if fitted with wheels and handles, 12s. extra, invented by J. Gardner, of Banbury, improved and manufactured by the exhibiters; a small hand turnip cutter, price 1*l.* 12s. 6d., invented, improved, and manufactured by the exhibiters; two sizes of bruising mill, for hand, horse, or steam-power, price 16*l.* 16s. and 7*l.* 10s., manufactured by the exhibiters; two sizes of a patent universal mill, for hand or other power, price 9*l.* 10s. and 12*l.* 10s.; two sizes of a patent bean cutter, price 4*l.* and 6*l.* 15s.; a patent steel oat mill, on an iron stand, price 4*l.*; a patent combined bean and oat mill, on an iron stand, price 6*l.* 6s.; another size, price 7*l.* 10s.; (new implement) a patent steel oat mill on iron stand, price 7*l.* 10s.—all invented and improved by G. A. Biddell, of Ipswich, and manufactured by the exhibiters; an oil-cake breaker, price 2*l.* 15s., invented, improved, and manufactured by the exhibiters; an improved cake breaker, price 5*l.*; a horse or steam-power chaff cutter, price with two knives, 15*l.*, with three ditto, 16*l.*; a hand, horse, or steam-power chaff cutter, price with patent striking-out gear, 11*l.*, without ditto 10*l.*, manufactured by the exhibiters; (new implement) a hand or horse-power chaff cutter, price 9*l*, invented, improved, and manufactured by the exhibiters; three sizes of hand-power chaff cutters, price 3*l.* 10s. to 4*l.* 4s., manufactured by the exhibiters; a light iron pony plough, price 2*l.* 2s.; two sizes of light iron plough, price 2*l.* 15s. and 3*l.* 3s., manufactured by the exhibiters; a patent trussed iron beam plough, price 6*l.* 8s. 6d., invented by John Clarke, of Long Sutton, improved and manufactured by the exhibiters (obtained the silver medal at the meeting of the Royal Agricultural Society at Norwich); a patent trussed beam iron plough, price with two wheels, 4*l.* 12s. 6d, skim coulter 5s., steel breast 9s. extra, invented, improved, and manufactured by the exhibiters (awarded the prize of 10*l.* and silver medal as the best heavy land plough, and prize of £10 and silver medal as the best light land plough at the Royal Agricultural Society's meeting at Southampton, and a council medal of the Great Exhibition, as made by Busby); a patent trussed beam iron plough, price with two wheels, 4*l.* 12s. 6d., skim coulter 5s. extra, steel breast 11s. extra (awarded the prize at the meeting of the Royal Agricultural Society at Lewes, at Lincoln, and again at Carlisle); an iron solid beam plough, price with two wheels, 4*l.* 17s. 6d., skim coulter 5s. extra, steel breast 9s. extra; a solid beam iron plough, price with two wheels 4*l.* 7s. 6d., skim coulter 5s. extra, steel breast 9s. extra (awarded the prize at the meeting of the Royal Agricultural Society at Chelmsford; (new implement) a strong wrought iron solid beam plough, price as a swing plough, with steel share, 5*l.* 5s., head wheel 7s. extra; a light iron plough, taking two furrows at one time, price with two wheels, 5*l.* 10s.—all manufactured by the exhibiters; a patent trussed beam iron one-way plough, price 6*l.* 17s. 6d., invented by Henry Lowcock, and manufactured by the exhibiters (awarded the silver medal at the Royal Agricultural Society's meeting at Southampton, prize of £5 at Shrewsbury, prize of £5 at Exeter, prize of £7 at Lewes, prize of £7 at Gloucester, prize of £2 at Chelmsford); a patent trussed beam iron Archimedian subsoil plough, price, with cast skife 6*l.* 12s. 6d., wrought ditto 7*l.* 17s. 6d., invented by Lord Beauclerk, and manufactured by the exhibiters (awarded the prize of the Royal Agricultural Society at Chelmsford); a patent trenching and subsoil plough, price 10*l.* 10s., invented by Robert Cotgreave, of Chester, and manufactured by the exhibiters (awarded the silver medal at Lincoln, at Carlisle, and at Chelmsford); two sets of trussed iron whippletrees, price 1*l.* 5s. (a silver medal at Derby, and at Southampton; commended at Lewes), and 1*l.* 1s.; an improved iron Suffolk horse drag rake, price with iron teeth 7*l.* 15s., steel teeth 8*l.* (the prize of £3 at Salisbury); an iron hand rake on wheels, price 2*l.* 10s.; a wrought iron horse hoe, with harrow attached, for ridge work, price 3*l.* 10s.; a wrought iron scarifier, cultivator, or grubber, price 16*l.* 10s. (prize at Chelmsford of £2); a two-horse light scarifier, price 10*l.*—all manufactured by the exhibiters; a patent double-action haymaking machine, price 16*l.* 16s., invented and improved by W. N. Nicholson, of Newark, and manufactured by the exhibiters (awarded the first prize of £5 at Salisbury); a two-horse power thrashing machine, price 42*l.*; a circular-saw bench, price 15*l.*, a one-horse gear, with intermediate motion, price 13*l.*; an iron greasing jack, price 1*l.* 10s.—all manufactured by the exhibiters; a lawn-cutting machine, 19 in. wide, price 5*l.* 17s. 6d., invented by E. Budding, of Dursley, and manufactured by the exhibiters; a set of stable fittings, price hay-rack 3*l.* 3s., enamelled manger 1*l.* 10s. 6d., safety tying apparatus 1*l.* 2s., sieve 13s., invented by J. A. Bruce, and manufactured by the exhibiters; three cast iron troughs, price round trough 6s., oblong trough 9s., 90 gallon pan 2*l.* 15s.; a set of five pig troughs, price from 1s. 9d., manufactured by the exhibiters; an Eagle patent mowing machine, price complete 35*l*, invented by Alexander H. Caryl, of Sandusky, Ohio, and manufactured by Nourse, Mason, and Co., of Boston, Massachusetts, United States (awarded the first prize of £15 by the Royal Agricultural Society of England at Salisbury 1857, the first prize of £20 by the Royal Agricultural Society of Ireland at Waterford in 1857, also the prize of £200 at the Massachusetts Agricultural Exhibition, 1856; winner of the large silver vase of the Indiana Agricultural Society, and many other prizes), for full particulars see *The Mark Lane Express* Aug. 10, 1857; a seven-horse-power portable steam engine (in motion), price 2*l.* 10s., heater 10*l.* extra (prize of £10 at Lincoln); a ten-horse-power portable steam engine (in motion), price 255*l.*, heater 10*l.* extra (new implement) an improved chaff cutter, price 24*l.*; a chaff cutter (in motion), price with two knives, 15*l.*, three ditto 16*l.*; (new implement) another chaff cutter (in motion), price 9*l.*; a bruising mill (in motion), price 16*l.* 16s.; (new implement) a patent universal mill (in motion), price 12*l.* 15s. 6d.; a patent combined mill (in motion), price 7*l.* 10s. 6d.; a patent bean mill (in motion), price 6*l.* 15s.; (new implement) a cake breaker (in motion), price 11*l.* 10s.; a four-way iron intermediate motion, price 15*l.* 15s., and a four-way intermediate motion, price 15*l.* 15s.—all manufactured by the exhibiters.

Hughes and Sons, of Dover-road, London.

A French runner millstone, 4 ft. diameter, for grinding wheat, price £12 10s.; a French bedstone, 4 ft. diameter, price £14; a flour dressing cylinder, price £6; an iron proving staff, price £3 3s.; a mahogany stone staff, for testing accuracy of face of millstones, price £1 10s.; a slate proving staff, for proving millstone staffs, price £2; a set of double and treble iron block, with brass sheaves 3-in. diameter, price £2 10s.; mill bills, for dressing millstones, price 1s. per lb, and handles for mill-bills, used for dressing millstones, price 2s. each—all improved and manufactured by the exhibiters.

William Sawney, of Beverley, Yorkshire.

An improved corn dressing machine, with patent screen cleaner, price £12; a corn dressing machine, with tappet screen, price £10 10s.; a corn dressing machine, with screen cleaner, price £10, all invented, improved, and manufactured by the exhibiter; three sizes of a corn dressing machine, price £6 to £8 10s., improved and manufactured by the exhibiter; a blowing machine and registered hariff (or cliver) apparatus, price £7 10s., invented, improved, and manufactured by the exhibiter; a blowing machine, price £3 15s., improved and manufactured by the exhibiter; a corn and seed screen, with patent cleaner, price, with wheat, barley, and seed screens, £7 10s., another size £6 10s., invented and manufactured by the exhibiter; a registered weighing machine and sack lifter, price £6, invented by John Spencer of Butterwick, improved and manufactured by the exhibiter.

Burgess and Key, of 95, Newgate-street, London.

Three sizes of a reaping machine, price 35*l.* to 42*l.* 10s, invented by C. H. M'Cormick, of Chicago, United States, improved and manufactured by the exhibiters (the Royal Agricultural Society's first prize was awarded to this machine in 1855, and their prize of £15 in 1856, it also received their prize at Salisbury in 1857); a patent chronometrical thermometer, price £7 10s., invented by W. H. Gauntlett, of South Bank Iron Works, Middlesboro'-on-Tees; a package of adjustable scythes, price 10s., invented by Robert Otway, of Lambeth, and manufactured by the exhibiter; several sizes of a force and lift pump, or farm fire engine, price from £9 10s. to £26 10s., invented by Kase, of America, improved and manufactured by the exhibiters; a copper lift pump, price without suction £4 4s.; a galvanized iron pump, price without suction £3 3s., improved and manufactured by the exhibiters; a patent rotary pump, price without suction or delivery £3 15s., invented by J. Macintosh of London, and manufactured by the exhibiters; several sizes of a patent American churn, price, from £1 10s. to make 3 lbs. of butter, to £2 10s. 6d. to make 12 lbs. of butter, invented by C. J. Anthony of America, improved and manufactured by the exhibiters (received prizes at all the meetings of the Royal Agricultural Society since its introduction, including the last one at Carlisle, and also at the Great Exhibition in 1851); a new apparatus for producing butter, price £1 10s. and upwards, invented by W. Bullock Webster, of Kirkham, Lancashire; a chaff cutter, price £10 10s., manufactured by the exhibiters; (new implement) a packet of Boites-à-Houppe, price 9s. 6d. each, invented by Messrs. Ouin and Franc, of Paris, and manufactured by the exhibiters; a hand rolling and mowing machine, £6 17s. 6d., invented by A. Shanks and Son, of Arbroath; a lawn mowing machine, price £6 10s., invented by E. Budding, of Dursley, and improved by B. Samuelson, of Banbury; a set of steel forks, for agricultural purposes, price 2s. each, and upwards, invented by Francis Parkes, of Birmingham, and improved and manufactured by Parkes and Co.; a bundle of five-tined digging forks, price 6s. 6d. each, other sizes cheaper, invented by Francis Parkes, of Birmingham (have received prizes at various meetings of the Royal Agricultural Society, and also at numerous other shows throughout England); a bundle of tools, price from 4s. 6d. each, upwards; a bundle of hay forks, price 2s. each, and upwards; a bundle of pitching forks, price 4s. 9d. each, and upwards; a bundle of steel spades, price 4s. 6d. each, and upwards; a bundle of surface spades, price 4s. each, and upwards; a complete set of draining tools, price £1 15s., all invented, improved, and manufactured by Francis Parkes, of Birmingham; a bundle of soil testers, price 4s. 6d. each, manufactured by Francis Parkes, of Birmingham; a bundle of gutta percha tubing, price 3s. per lb., manufactured by the Gutta Percha Company, of London; a bundle of canvas hose, price 1s. per yard, and upwards; a bundle of India rubber driving bands, for machinery, price 1s. per foot, and upwards; a bundle of India rubber tubing, price 6d. per foot, and upwards; a bundle of garden chairs and seats, price 4s. 6d., and upwards, manufactured by Barnard and Bishop; a parcel of jets and unions, price 10s., and upwards; a water carrier, price £4, manufactured by the exhibiters; an improved stirrup leather stamper, price £1 1s., invented by W. Bullock Webster, of Kirkham, Lancashire; an eight-horse-power high pressure horizontal steam engine, price £125, and a patent tubular eight-horse self-complete boiler, price £60, manufactured by E. E. Allen, of London; a patent corrugated fibrous roofing, price 3d. per foot, and upwards, invented by Healey and Allen, of London.

F. M'Neill and Co., of the Asphalted Roofing Felt Works, Bunhill-row, London.

Patent asphalted roofing felt, price 1d. per foot, manufactured by the exhibiters; and several models and specimen framings of roofs, illustrating the cheap construction of roofs for the application of F. M'Neill's asphalte roofing and other purposes.

William Prockter Stanley, of Peterborough, Northamptonshire.

Three sizes of a registered roller mill, for crushing linseed, oats, barley, malt, and splitting beans, price from £4 10s. to £11, invented, improved, and manufactured by the exhibiter (prizes were awarded to this mill at all the Royal Agricultural Society's shows where prizes have been competed for since 1848; it also obtained a medal at the Great Exhibition of 1851, a silver medal and 300 francs from the Paris Exposition, 1855; also the first prize at Peterborough, 1857, and eight preceding years, and at every local show in the country); a Cambridge's patent roller clod crusher, with exhibiter's patent scrapers, price 20 in. diameter £10 10s., 24 in. £11 11s., 26 in. £12, 30 in. £14 10s., all 6 feet 6 in. wide, patent scrapers £2 per set extra, complete £16; a new hand sack barrow and sack raiser, price £3 10s.; and a farmer's portable steam cooking apparatus, for cooking linseed, hay, chaff, and roots, price £17 10s. (a prize of 300 francs and a gold medal were awarded to this implement at the Paris Exposition, 1855), all invented, improved, and manufactured by the exhibiter.

William Pearson and Co., of Leeds, Yorkshire.

A machine for washing, wringing, and mangling all descriptions of domestic linen, price from £2 5s. to £12 12s., invented and manufactured by the exhibiters; (new implement) a washing machine, on the celebrated American floating ball principle, price £10, invented by B. Moore and Co., of London, improved and manufactured by the exhibiters; and a portable table wringing machine, price £1 17s., invented and manufactured by the exhibiters.

John Berry, of Holybourne, near Alton, Hants.

A double shaft waggon, for general purposes, price £32, improved and manufactured by the exhibiter.

W. L. Fisher, of Thrapston, Northamptonshire.

Three sizes of an improved chaff machine, price £6, £10, and £14; an improved cake mill, price £3 5s.; an improved double cake mill, price £5; a combined bean and cake mill, price £5 (received as a special prize a silver medal from the Royal North Lancashire Agricultural Society's show at Preston, August, 1856); a combined bean, oat, and cake mill, price £7 10s.; an improved bean mill, price £2 10s.; an improved one horse power, price £12; a patent horse rake, price £7 10s. (took a prize at the Royal Agricultural Society's meeting at Salisbury, July, 1857); a patent sheep's foot clod crushing roller, price £15 (was highly commended at Chelmsford by the judges of the Royal Agricultural Society, July, 1856); an improved oat and bean mill, price £7 10s.; an improved horse hoe, price £2; an improved mangold and turnip drill, price with small rollers £7 10s., with large rollers £10; and an improved steerage corn drill, price £10 (took a prize of £5 at the Royal Improvement Society's show at Waterford, August, 1857). All are invented and improved by Nathaniel Smith, of Thrapston, and manufactured by the exhibiter.

Richard Read, of 35, Regent-circus, Piccadilly, London.

A patent double action agricultural fire engine, complete, price £40; a patent agricultural fire engine, complete, price £18 18s. (a silver medal was awarded for this engine at the Exeter meeting); three sizes of a patent watering engine, on four wheels, price £5 5s. to £7 10s., invented, improved, and manufactured by the exhibiter; a patent injecting instrument, for horses, cattle, &c., price £2 10s., invented by the late John Read, improved and manufactured by the exhibiter (has been highly commended at several of the Royal Agricultural Society's meetings); a hollow probang, for relieving hoven or choked cattle, price £1 10s., £1 1s., and 10s.; a patent hand watering machine, price £2 12s. 6d. (highly commended by the judges at Lewes); a patent greenhouse pump, complete, price £3 10s.; and a patent greenhouse syringe, price £1 10s., invented, improved, and manufactured by the exhibiter.

James Hayes, of Elton, near Oundle, Huntingdonshire.

A steam power combined thrashing machine, price £95; (new implement) a patent portable straw elevator, price £61 10s.; three sizes of a portable corn grinding mill, price £18 10s., £31 10s., and £39 10s.; and a flour dressing machine, price £15, all invented, improved, and manufactured by the exhibiter.

JAMES BANKS, of Derby-square, Liverpool, Lancashire.

(New implement) a patent grass and corn reaper, price 35l., invented and manufactured by the exhibiter; several specimens of an iron hurdle, price from 4s. upwards, manufactured by the exhibiter; a continuous flat-barred fence for cattle, price 2s. 7½d., for deer 3s. 9d. per yard; a continuous park fence, price 5s. 6d. per yard, manufactured by the exhibiter; a patent continuous flat-barred fence, price 3s. 10d., and a patent continuous round bar fence, price 3s. 4d. per yard, invented and manufactured by W. and M. Bayless and Co, of Wolverhampton; an iron field-gate, price 2l. 3s.; another, 3l.; a tubular iron field gate, price 1l. 17s. 6d., and an iron carriage-gate, price 7l, manufactured by the exhibiter; a cast-iron wicket, price 4l. 10s, manufactured by the Coalbrookdale Company; a clod-crusher roller, price 16l. 10s., invented by G. W. Robinson, of Barton-on-Humber, and manufactured by the exhibiter; a patent cart turnip-cutting machine, price 10l. 10s, invented, improved, and manufactured by Caldow and M'Kennil, of Dumfries; a turnip-pulper, price 6l. 6s., invented by E. H. Bentall, of Heybridge; a turnip slicer, price 3l., manufactured by R. Forshaw and Co., of Liverpool; a chaff-cutting machine, price 3l. 15s., and another size 7l., manufactured by Richmond, Chandler, and Norton, of Manchester; a corn crusher, price 5l. 5s.; a malt mill, price 6l., manufactured by the Coalbrookdale Company; a horse-rake, price 6l., improved and manufactured by Caldow and M'Kennil, of Dumfries; ornamental stall divisions, price 2l. 15s. and upwards; stable-fittings, price 1l. 6s. to 1l. 12s. 6d.; saddle-brackets, price 1s. 6d. to 6s. 6d.; a bridle-hook, price 2s., and a garden-roller, price 3l., manufactured by the exhibiter; garden-seats, manufactured by the Coalbrookdale Company, price 1l. 17s. 6d. to 2l. 10s., and specimens of wire-netting, price 4½d. per yard and upwards.

WILLIAM BUTLIN, of Northampton.

(New implement) a six-horse portable steam-engine, price 210l., invented and manufactured by the exhibiter.

FRANCIS FAIRFAX HICKMAN, of Chester.

A compound lever cheese-press, price 2l. 18s., invented, improved, and manufactured by James Mellard, of Rugeley (has received repeated prizes from the Staffordshire Agricultural Society); a curd mill, price 1l. 17s. 6d., improved and manufactured by William Thomas, of Shotwick; two Cheshire curd-breakers, price 3s. 9d. and 4s. 9d.; a Wrexham pattern curd-breaker, price 8s. 6d.; an American pattern curd-breaker, price 10s, and two common Cheshire cheese-fillets, price 1s. 3d. and 1s. 10d., manufactured by the exhibiter; several sizes of an improved cheese-fillet, price 1s. to 6s., invented and manufactured by the exhibiter; a wire curd-basket, price 1l. 10s. 6d.; different sizes of a tin milk-pan, price 3s. to 6s. 6d.; a brass milk-pan, price 1l. 4s. 6d., and two sizes of a tin milk-warmer, price 7s. 6d. and 10s.; hair sieves, with wood rim, coarse bottom, price 1s. 6d. to 2s. 9d.; tin milk-sieves, various sizes, from 2s. 6d. to 5s.; tin milk-cans, various sizes, from 2s. to 5s. 6d.; two dozen wire-skewers, price 1s. 8d., and cream-skimmers, various sizes, from 8d. to 1s. 3d., manufactured by the exhibiter; a roll of galvanized wire-netting, price 1s. 5s., manufactured by Thomas Standing, of Preston, three rolls of wire-netting, from 1l. 0s. 10d. to 1l. 17s. 6d.; an iron bedstead, price 12s. 6d., manufactured by Tylor and Pace, of London; a galvanized stable-bucket, for water, price 2s. 6d.; another size 3s.

SAMUEL NYE, of 79, Wardour-street, Soho, London (W.).

A new patent chaff machine, on a new principle, price 4l. 4s., another size 4l. 14s. 6d.; patent mincing and sausage-machines, price 1l. 10s. and upwards to 3l. 3s., and a patent improved coffee mill, price 10s., all invented, improved and manufactured by the exhibiter, and an ice-making apparatus, price 1l. 12s., invented, improved and manufactured by George Keith, 55, Great Russell-street, Bloomsbury.

THOMAS NALDER, of Challow Works, Wantage, Berkshire.

An improved patent portable combined finishing, thrashing shaking, and dressing machine, fitted with Goucher's patent beaters and Nalder's patent screen (to which was awarded the Society's silver medal at the Carlisle show, 1855, as applied to Messrs. Clayton, Shuttleworth, and Co.'s machine), price 110l., and (new implement) a patent corn separator, price 8l. 8s., both invented, improved and manufactured by the exhibiter.

R. ROBEY AND CO, of Lincoln.

An 8-horse power patent portable steam engine, price 230l.; a 10-horse ditto, price 290l., and a portable combined thrashing, shaking, and dressing machine, price 115l., all invented, improved and manufactured by the exhibiter.

ROBERT MAYNARD, of Whittlesford, Cambridge.

A patent portable combined chaff cutting and sifting engine, price 34l.; an oilcake crusher for hand power, price fitted with two pairs of rollers 10l., with one pair ditto 7l. 5s., and an oilcake crusher for steam power, price 12l. 10s., all invented and manufactured by the exhibiter.

JAMES SAVORY, of Tewkesbury, Gloucestershire.

A portable combined thrashing machine, with improved patent smutting and cleaning machine, price 100l., invented, improved and manufactured by the exhibiter.

BENJAMIN FOWLER, of Whitefriars-street, Fleet-street, London (E.C.).

Several sizes of a cast iron bored pump, price 1l. 5s. and upwards to 5l., and several sizes of a wrought iron portable pump, price 2l. 10s. and upwards to 4l., improved and manufactured by Fowler and Co.; a bundle of vulcanized wired India-rubber suction hose, price 2s. 9d. per foot; a portable force pump, price 6l. 10s.; a garden engine, price 2l. 10s., and another size 3l 10s., manufactured by Fowler and Co.; a patent farm fire engine and liquid manure distributor, price from 10l. to 23l, and a farm fire engine with tank, price 22l., invented by S. Holman, of Deptford, improved and manufactured by Fowler and Co.; a bundle of vulcanized wired India-rubber suctions, price from 3s. 6d. per foot; a bundle of patent wove canvas or flax delivery hose, price from 1s. 5d. per yard; brass swivel hose union screws, price from 6s. 6d. each; a parcel of branch pipes and jets, price from 10s. 6d.; a cast iron force pump, price 6l. 10s., and a gun metal force pump, price 7l. 10s., improved and manufactured by Fowler and Co.; patent double action pumps for steam power, price 8l. 10s and upwards to 32l., invented by S. Holman, of Deptford, improved and manufactured by Fowler and Co.; a hydraulic ram, price 15l., improved by Freeman Roe, of Wandsworth, manufactured by Fowler and Co.; two brass lift and force pumps on plank, price 4l. 16s. 6d. and 7l. 5s., improved and manufactured by Fowler and Co.; a patent double barrel forcing pump in frame, price 32l. 10s., invented by S. Holman, of Deptford, improved and manufactured by Fowler and Co.; a water barrow and rubbish carrier, on wheels, price 6l.; a water tank, on wheels, price 2l. 10s.; a bundle of galvanized iron pails, price 2s. 6d. and 3s. 6d. each, manufactured by Fowler and Co.; a coil of gutta percha tubing, price 4d. per foot; an improved sluice valve, price 3l. 3s.; a model hydraulic ram, with tanks &c., price 5l. 5s.; and a patent horizontal double barrel farm fire pump (model), price 16l., invented by S. Holman, of Deptford, improved and manufactured by Fowler and Co.

PERREAUX and Co., of 39, Mark-lane, London.

Thirty-four different sizes and descriptions of patent India-rubber pump valve, price 5s. and upwards to £3 15s., invented by Louis Guillaume Perreaux, of Paris, and manufactured by the exhibiters (obtained the 2nd prize at the Exposition Universal 1856, silver medal at the Concours Régional d'Evreux 1857, silver medal at the Exposition de Vienne 1857, grand gold medal from the Society d'Encouragement 1857, silver medal of the Royal Agricultural Society 1857), a 3 and a 3½ in. brass and glass model pump, fitted with patent valves, price £8 10s., invented, improved, and manufactured by the exhibiters; a 3 in. brass and glass model lift and force pump, fitted with patent valves, price £12 10s., invented, improved, and manufactured by T. Suffield and Co., of London; a brass and glass model fire engine, fitted with patent valves, price £10 10s., invented, improved, and manufactured by the exhibiters; a brass model of a 6 in. patent single ship's pump, fitted with patent valves, price £19, invented and manufactured by T. Suffield and Co.; a brass model of a pair of 6 in. patent double ship's pumps, fitted with patent valves, price

£48, and 4 in. copper liquid manure pumps, fitted with patent valves, price £7 5s. to £7 18s., invented and manufactured by the exhibiters; 4 in. copper liquid manure and force pumps, fitted with patent valves, price £9 8s. to £9 15s., and a dozen of patent platform and deck swabs and scrubs, price 7s. 6d. each, invented and manufactured by the exhibiters; India rubber pails, price 7s. to 10s. 6d., a piece of 3 in. india-rubber and canvas machine driving band, price 8¼d. per foot, and a piece of 1½ inch India-rubber and canvas delivery hose pipe, price 10d. per foot.

Smith and Ashby, of Stamford, Lincolnshire.

A patent double-action and reverse-motion haymaking machine, price £15 15s. (took every first prize offered by the Royal Agricultural Society of England during a period of ten years in succession, without a single exception; the first prizes also of the Royal Societies of Ireland, Scotland, and the provincial societies were all awarded to this machine during the same period, the prize medal of the Great Jubilee Meeting at Vienna in 1857, the prize medal and the prize of 200 francs at the Paris Agricultural Exhibitions of 1855 and 1856, one of the prizes of the Royal Society at Salisbury in July 1857, and £5 at Waterford); a patent steel-tooth horse rake, for hay, corn, stubble, and couch grass, price £8 (took the first prize of the Royal Society of Ireland two years in succession, 1855 and 1856, against all the best rakes in the kingdom, the certificate of commendation from the council of the Paris Exhibition, the prize medal of the Great Exhibition in London in 1851, the commendation of the judges of the Royal Agricultural Society of England, the honorary certificate of the Royal Agricultural Society of Dublin in 1855, a first prize at the Great Agricultural Meeting at Adelaide, Australia, in 1855, certificates of honour from the Bath and West of England Agricultural Society in 1857, the prize of the Royal Agricultural Society of England in 1857, and above 20 prizes from various other societies); another size, £10; and a patent wheel hand rake, for hay, corn, stubble, couch grass, &c., price £2, all invented, improved, and manufactured by the exhibiters; two specimens of a new two and a-half horse portable steam engine, on Smith and Ashby's patent wrought-iron wheels, price with Salter's balance, glass water gauge, &c. £65, extra for governors £5, pulley 15s., improved and manufactured by the exhibiters; a two-horse portable thrashing machine, with straw shaker, complete, price £45, invented, improved, and manufactured by Messrs. Humphreys, of Pershore; an improved circular-saw bench, price including 24 in. saw £17; and an improved portable grinding mill, fitted with peak stones, price £17, improved and manufactured by the exhibiters; several sizes of the three-knife patent safety chaff cutter, for horse or steam power, with new patented improvements, price with change of wheels complete from £11 to £14, extra for pulley £1 (received several prizes, the first prize of the Bath and West of England Agricultural Society at Plymouth, and the prize medal of the Great Exhibition of all Nations in London in 1851); several sizes of the two-knife patent safety chaff cutter, for one horse, steam, or hand power, price with change wheels complete from £6 6s. to £10 (the prize medal of the Great Jubilee Meeting of the Royal Imperial Agricultural Society of Austria was awarded to this and to the exhibiters' No. 6 machine at Vienna in 1857, also took the prize of the North Lincolnshire Agricultural Society at Louth in 1857, and, again, the prize of the Great Yorkshire Agricultural Society at York in 1857); a registered oil-cake mill, with double-action, for sheep and oxen, price £3 15s. (took the prize of the Bath and West of England Agricultural Society in 1856 and 1857, and was also highly commended by the judges of the Royal Dublin Agricultural Society in 1856); a registered double action oilcake mill, for horse, steam, or hand power, price £5 5s.; and an improved triangular oak frame horse works, for one horse power, price with connecting rod complete £11 10s., all invented, improved, and manufactured by the exhibiters.

Barton and Son, of the Crescent Factory, Carlisle, Cumberland.

An unpainted tandem Whitechapel car, price 25*l.*; an unpainted dog car, price 28*l.*; a Scotch car, price 26*l.*; an unpainted Cavendish car, price 21*l.*; a moor car, price 24*l.*, and a Stanhope gig, price 30*l.*—all invented and manufactured by the exhibiters.

E. A. Ferryman, of Wadenhoe, near Oundle, Northamptonshire.

A churn, price £3, invented by the exhibiter, and manufactured by J. Gann, of Oundle (awarded a silver medal at the meeting of the Royal Agricultural Society, at Salisbury, July 20th, 1857); another size £1 10s.

John Hardley, of Shide, near Newport, Isle of Wight.

(New implement) a patented apparatus for grinding gorse and other vegetable substances, invented by the exhibiter, and manufactured by Mew and Thorne, of West Cowes, Isle of Wight, price £26 10s.

Alfred Crosskill (for the Trustees of W. Crosskill), of Beverley, Yorkshire.

An improved pair-horse waggon, price £29 10s., with double break £3 extra, invented and improved by W. Crosskill, and manufactured by the exhibiter (received the prize of the Royal Agricultural Society for six successive years); an improved Yorkshire waggon, price £37, deep sideboards £2 extra, drag-chain and shoe £1 extra, manufactured by the exhibiter; an improved pair-horse waggon, price £29 10s., invented and improved by W. Crosskill, and manufactured by the exhibiter; an improved light pair-horse waggon, price £36 10s., manufactured by the exhibiter; a Newcastle or model one-horse cart, price £14 5s., with shelvings £1 10s. extra, invented and improved by W. Crosskill, and manufactured by the exhibiter; an improved Newcastle cart, price £13, with curved raves £2 extra, and a light Newcastle cart, price £12 10s., with curved raves £2 extra, improved by W. Crosskill, and manufactured by the exhibiter; a York prize-cart, price 12*l.*, with shelvings 1*l.* 10s. extra (received the prize, at York, in 1853); a Newcastle cart, price £13; a light one-horse cart, price 11*l.*, and a pony cart, price 10*l.* 5s., improved by W. Crosskill, and manufactured by the exhibiter; an improved Hannam's harvest-cart, price 14*l.* 10s., invented by H. Hannam, Esq., of Burcote Park, and manufactured by the exhibiter; an improved two-horse cart, price 17*l.*, improved by W. Crosskill, and manufactured by the exhibiter; an improved spring cart, price 17*l.* 10s., and an improved light spring cart, price 18*l.* 18s., manufactured by the exhibiter; several pairs of patent cart wheels and axles, price 6*l.* and upwards, improved by W. Crosskill, and manufactured by the exhibiter; an improved iron liquid-manure cart, price 17*l.*, with pump and hose pipe 5*l.* 15s. extra, and four-row watering apparatus 15s. extra; an improved iron pump, price with leather hose like that on the manure cart, 7*l.* 7s., with tripod stand 1*l.* 1s. extra; an improved iron fixture pump, price 3*l.* 5s.; a patent clod crusher or serrated roller, price without travelling wheels 17*l.* 10s., complete 19*l.* 10s.; an improved patent clod crusher, price without travelling wheels 13*l.*, complete 15*l.* and upwards; specimens of patent portable farm railway, price turn-table 5*l.* 10s., rails 4s. per running yard, and trucks for patent portable railway, price 5*l.* 10s. each.—all invented and improved by W. Crosskill, and manufactured by the exhibiter; an Archimedian root-washer, price 5*l.* 10s., invented by Captain Carr, improved by W. Crosskill, and manufactured by the exhibiter; a patent fixture pig-trough, price 3 ft. 6 in. wide 3*l.* 5s., invented by William Torr, Esq., of Aylesby, improved by W. Crosskill, and manufactured by the exhibiter; an improved corn-dressing machine, price 9*l.* 10s., and a portable corn-mill, for steam or water power, price 50*l.*, improved by W. Crosskill, and manufactured by the exhibiter; an improved bone-mill, for steam or water power, price 165*l.*, with shafts, gear, and fly-wheel for driving the mill by strap 20*l.* extra; another size, price 85*l.*; (new implement) a bone-dust mill, price 75*l.*, and an improved reaping machine, price 42*l.*, improved and manufactured by the exhibiter.

Holmes and Sons, of Prospect-place Works, Norwich, Norfolk.

An improved seven-horse-power portable steam-engine, price 220*l.*, extra for felting and casing steam-chest 10*l.*, and an improved eight-horse power fixed steam-engine, price 200*l.*, engine without boiler 110*l.*, improved and manufactured by the exhibiters; an improved prize combined portable thrashing-machine, price 105*l.* (the first-prize medal at the Great Exhibition, London, 1851, was awarded to this machine); another size 90*l.*; a corn-dressing or winnowing machine, price 11*l.*; another size 5*l.* 10s.; (new implement) a portable seed-sheller, with dressing apparatus, price 50*l.*; an improved prize corn and seed drill, price with 13 levers 25*l.*, with steerage and press 27*l.* (the following prizes have been awarded to this implement, £7 being the first-prize at Salisbury, Newton Abbott in 1857 the prize, Tiverton in 1855 the prize, also by the Devonshire Agricultural Society the prize); another size £22, if to press as well as steer £2 extra; an improved prize corn and seed drill, for small occupations, price with 9 levers 16*l.* 16s., with newly-invented steerage 1*l.* 1s. extra, invented by J. Bellfield, Esq., of Paington, Devon, improved and manufactured by the exhibiters; a drill for corn and general purposes, price £29, with improved barrel and scrapers £1 10s. extra; an improved prize manure-distributor, price 14*l.*, if fitted with improvements for hill-sides 1*l.* 10s. extra (received the Society's prize at Salisbury in 1857, and at Exeter, also at Newton Abbott in 1857, at Swaffham in 1857, at Norwich in 1856 and 1854, Bath in 1854, and at Taunton); a Carlisle prize seed and manure drill, for flat or ridge work, price 13*l.* 13s. (was awarded the prize of 5*l.* at the Royal Agricultural Society's meeting at Carlisle in 1855, the prize of the Bath and West of England Society five successive years, and the first prize of 5*l.* by the Norfolk Society as the best improved implement at Swaffham in 1855), and an improved prize seed and manure drill, price 20*l.* (this was awarded the Bath and West of England Agricultural Society's prize at Bath in 1854)—all invented, improved, and manufactured by the exhibiters; a seed and manure drill, on the ridge or flat, price 4*l*, if with shafts and two rolls 5*l.* 10s., invented and manufactured by the exhibiters; a single-row hand drill, price 2*l.*, invented, improved, and manufactured by the exhibiters.

BERNHARD SAMUELSON, of Banbury, Oxfordshire.

A patent Gardner's double action turnip cutter, for steam or horse-power, price £12, turned pulley extra; two patent Gardner's double action turnip cutters, price £5 13s. 6d., without lamb plates £5 10s., if on wheels and handles £6 5s. 6d. (obtained the £5 prize at the Royal Agricultural Society's show at Norwich 1849, Exeter 1850, Gloucester 1853, Lincoln 1854, and Carlisle 1855, and, with the exception of the frame, is like the one which obtained the Royal Agricultural Society's prizes at Lewes 1852, and Great Exhibition of 1851); a patent Gardner's double action turnip cutter, price £6 14s. 6d., if without wheels and handle £6 2s. 6d. (obtained the Great Exhibition prize medal 1851, and the £5 prize at the Royal Agricultural Society's show at Lewes, in 1852); a patent Gardner's multiple turnip cutter, price £7 2s., and several other sizes, all invented by the late James Gardner, of Banbury, improved and manufactured by the exhibiter; an improved root pulper, for hand power, price £4 10s., another size £5 10s., manufactured by the exhibiter; a turnip grater, price £4 10s., invented by Edmund Moody, late of Maiden Bradley, improved and manfactured by the exhibiter; a patent combined root-grater and chaff-cutter, price for hand power £6 10s., another size for horse power £9, invented and manufactured by the exhibiter; (new implement) two patent disc root pulpers, price £4 10s, invented by Thomas Brewer, of Banbury, and manufactured by the exhibiter; a patent hand-root pulping and mincing machine, price £6 10s., invented by Frederick Philips of Brandon, and manufactured by the exhibiter; a lever turnip slicer, price £1 15s., invented and manufactured by the exhibiter; a patent root grater, price £3 10s., if boxed in to prevent the shreds from flying about £4 5s., another size £5, invented by Bushe and Barter, of Lismore, Ireland, improved and manufactured by the exhibiter; an improved Corne's chaff cutter, price £13, if with pulley extra; several sizes of Corne's chaff cutter, with two and three knives, at various prices from £4 15s. to £12, invented by J. Cornes, sen., of Barbridge, improved and manufactured by the exhibiter; a rising mouth chaff-cutting machine, price £4, improved and manufactured by the exhibiter; an economical chaff-cutting machine, price £8, invented, improved, and manufactured by the exhibiter; a small chaff cutter, for exportation, price £3 5s., for six packed in case £21, invented and manufactured by the exhibiter; a roller mill for crushing oats, and linseed, splitting beans, &c., price from £5 to £9, if with pulley extra, improved and manufactured by the exhibiter, and constructed on the principle of those mills which have received many prizes of the Royal Agricultural Society; a universal corn-crushing or bruising mill, price £3 5s., if on iron stand and hopper £3 10s., another size £5 10s.; a malt crushing mill, price £6 15s., invented, improved, and manufactured by the exhibiter; a bean splitting mill, price £2 2s. 6d., invented and manufactured by the exhibiter; (new implement) a bean splitting mill, price £4, pulleys extra, manufactured by the exhibiter; several sizes of a linseed cake breaking machine, price £2 16s. 6d. to £9, improved and manufactured by the exhibiter; an improved double acting haymaking machine, price £13 13s., invented and manufactured by the exhibiter; a patent self-relieving horse-rake, price £9, invented by John Marychurch, Haverfordwest, and manufactured by the exhibiter (awarded first prize and gold medal at Paris, 1855, and the special award of the Bath and West of England Society at Yeovil, 1856); an improved horse rake, price £8, if with case-hardened teeth £8 10s., invented, improved, and manufactured by the exhibiter: a set of heavy seed harrows, price £4 4s., and a set of light seed harrows, price £3 3s., improved and manufactured by the exhibiter; several specimens of patent self-relieving chain harrows, price from £3 15s. to £5 10s., invented by John Cartwright, of Shrewsbury, and manufactured by the exhibiter; a strong wrought iron five-tine horse-hoe, price 3*l.* 10s., with three tines only 2*l.* 16s., manufactured by the exhibiter; a patent turnip thinner and hoe, price 8*l.*, as a singler only 7*l.* (has received three Royal Agricultural Society's money prizes, three Bath and West of England society's prizes and many local ones, and was highly commended by the judges at Salisbury, 1857); a patent horse-hoe for hill sides, price 5*l.*, with share to use as paring plough on light lands 5*l.* 10s., and a hand manure distributor, price 4*l.*, invented by Thomas Huckvale, of Choice Hill, and manufactured by the exhibiter; a Crosskill's patent clod crusher, 6 feet by 30 inches, price 19*l.* 10s., without travelling wheels 17*l.* 10s., invented by Wm. Crosskill, of Beverley, and manufactured by the exhibiter (has received many Royal Agricultural Society's and other prizes); a Cambridge's patent press roller or clod crusher, price 16*l.*, invented by William Cambridge, of Bristol, and manufactured by the exhibiter; a three-cylinder field roller, price 11*l.* 10s., manufactured by the exhibiter; several sizes of registered Budding's lawn mowing machine, or grass cutter, prices from 4*l.* 5s. to 11*l.* 11s., invented by E. Dudding, of Dursley, improved and manufactured by the exhibiter; a nine inch lawn mowing machine, price 2*l.* 10s., invented, improved, and manufactured by the exhibiter; a registered Budding's lawn mower, with Boyd's patent cleaning and sharpening apparatus, price 6*l.* 9s., invented by E. Budding, of Dursley, improved and manufactured by the exhibiter; an American reaping machine, price 30*l.*; a galvanized sheet iron barrel pump, price 2*l.* 5s., if with sheet copper barrel 3*l.* 12s. 6d., gutta percha suction 1s. 9d. to 2s. 6d. per foot, improved and manufactured by the exhibiter; a four-inch Kase's patent double action force and suction pump and fire engine, price 9*l.* 4s., invented by Kase, of America, improved and manufactured by the exhibiter; an Anthony's patent American churn (10 quart), price 2*l.* 13s., without stand 2*l.* 5s., invented by Charles Anthony, of Pitsburg (U. S.), improved by Burgess and Key, of London, and manufactured by the exhibiter (took the Royal Agricultural Society's silver medal at Exeter, a prize medal at the Great Exhibition of 1851, the prize at Gloucester, 1853, and at Carlisle, 1855); a registered atmospheric churn, price 1*l.* 10s., on stand 1*l.* 18s. and upwards, invented and manufactured by the exhibiter; an improved portable mangle, price 4*l.* 12s., without stand 4*l.*, and an improved one-horse-power, price 13*l.*, if for two horses 16*l.*, manufactured by the exhibiter; an Archimedian root washer, price 5*l.* 10s., invented by Capt. Carr, improved by William Crosskill, and manufactured by the exhibiter; a hand drag rake, price 12s., manufactured by the exhibiter; a bundle of Parkes's celebrated cast steel digging forks, price 3s. each and upwards, invented and manufactured by F. Parkes, of Sutton Coldfield; a galvanized sheet iron skip, 19 inches, price 4s. 3d. and upwards, manufactured by the exhibiter; a letter-copying press (foolscap size), price 2*l.* 15s., improved and manufactured by the exhibiter; (new implement) a patent wringing machine, price 3*l.* 3s., invented and manufactured by W. S. Underhill, of Newport, Salop.

HARE and Co., of 31, Essex Street, Stand, London.

A sample of Mabson's anti-smut powder, price 10s. per dozen packets, invented and manufactured by W. Mabson, of Yarmouth; Sudbury's patent self-closing tap, for beer, wine, &c., price $\frac{5}{8}$-in., 2s. 6d., invented, improved, and manufactured by W. Sudbury, of Halstead; a Maddison's patent pneumatic bell, price, small pattern, including ball, 11s. 6d., invented and manufactured by W. Maddison, of Dewsbury; a bean-cutter, price 2s., improved and manufactured by Mr. Gidney, of Norfolk.

S. AND E. RANSOME AND Co., of 31, Essex-street, Strand, London.

Long's specific, reduced to 4s. 6d. per gallon; Long's preservative or lamb dressing, price 2s. 8d. per gallon, and Long's foot-rot lotion, price £1 10s. per dozen pints, invented by Joseph Long of London, improved and manufactured by Barry Brothers of Meriton's Wharf, London; specimens of sheepskin with fleece (these fleeces were not for sale); (new implement) a patent English knuckle washing machine, price £3 5s., another size £4, invented by Grey and Tate, and manufactured by the exhibiters; a No. 3 wringing and mangling machine, price £3 10s., and a No. 4 wringing machine, price £2 5s., invented and manufactured by Summerscales and Son; (new implement) patent wringing and mangling machine, price £3 3s., invented and manufactured by W. S. Underhill, Newport; "Great Exhibition of 1851 prize churns," known originally as "Wilkinson's churns," price to make 4 lbs. £1 6s., 6 lbs. £1 10s., 10 lbs. £1 12s. 6d., invented by the late T. Wilkinson of London, and manufactured by the exhibiters (received the prize medal at the Great Exhibition of 1851); Nye's patent mincing and sausage-making machine, price £1 10s. and upwards, invented and manufactured by Samuel Nye of London; a marble slab for butter, pastry, &c., price 2s. 6d. each, manufactured by W. Read of London; nests of five patent iron travelling and office trunks, price japanned £4 7s. 6d. and upwards, invented by Wilson & Co., and manufactured by the exhibiters; two lifting jacks with brass bushes, price to lift 2 tons £1 16s., 4 tons £2, manufactured by the exhibiters; a cottage range, enclosed all round, price £2 15s., and an emigrant's stove, price complete with kettles £4, manufactured by the exhibiters; patent filters or purifiers, price £1 and upwards, and a pocket or sportsman's filter, price complete 3s. 6d., invented and manufactured by the exhibiters; two of Schaeffer's patent steam gauges of 60 lbs. pressure, price £3 and £4, invented and manufactured by Schaeffer and Co. of Magdeberg; (new implement) a Schaeffer's improved counting machine, price with 4 dials or figures to count up to to ten thousand £2 13s. 6d.; a wrought iron fireproof book safe, price £6, invented and manufactured by Perry & Co.; (new implement) a patent sluice valve for gas, water, or other fluids, price 3-in. diameter and above 10s. per inch, invented and manufactured by Brown and May of Devizes; a sample of Newcastle Vulcan cement for all kinds of steam joints and pipes, price £32 per ton, invented and manufactured by Jeamson and Co.; a sample of patent boiler composition, for destroying and preventing incrustation in steam boilers, price £2 5s. per cwt., invented and manufactured by Mr. Buckingham of Walworth; a cucumber slicer, price 1s. 3d., and a horseradish scraper, price 1s. 3d., invented and manufactured by Mr. Gidney of Norfolk; a patent sulphurator or sprinkler, for plants, vines., &c., price 2s. 6d., invented and manufactured by Ouin and Franc of Paris.

JAMES AUSTIN, of Fountain Bridge Mills, near Edinburgh.

(New implement) a combined steam plough and cart, price £500, invented and manufactured by the exhibiter.

ROBERT BOBY, of Bury St. Edmunds, Suffolk.

A patent corn-dressing machine, price £15; (new implement) a large patent corn screen, with new improved separator, price £10 10s.; a large patent corn screen, price £9; a small patent corn screen, price £7, and a patent adjusting corn screen, price £12, all invented by T. C. Bridgman of Bury St. Edmunds, improved and manufactured by the exhibiter.

WILLIAM GOULDING and Co., of Short-street Works, Leicester.

Four sizes of an improved corn crusher or roller mill, for grinding and crushing beans, peas, oats, &c., price 3*l.* 10s. and upwards; and an improved oilcake breaker, for beasts, sheep, and lambs, price 3*l.* 6s., other sizes 3*l.* 3s., invented, improved, and manufactured by the exhibiters; a root pulper, price 4*l.* 15s. and 5*l.* 5s., invented and manufactured by the exhibiters; a one row turnip and mangel drill, price 2*l.* 7s. 6d. and upwards, invented, improved, and manufactured by the exhibiters; a one row turnip, mangel, and manure drill, price 6*l.* 15s., improved and manufactured by the exhibiters; a two row lever turnip and mangel seed drill, price 7*l.*; (new implement) a four row corn and seed drill, price as a corn drill 5*l.* 10s., set of rings and cups for different seeds 10s. extra; and a six row lever corn drill, price 12*l.* 12s., invented, improved, and manufactured by the exhibiters; several sizes of a garden seat, price 16s. and upwards, designed and manufactured by the exhibiters; several specimens of an iron plough, price 4*l.* and upwards; and a wood beam plough, price 3*l.* 3s. and 3*l.* 18s., invented, improved, and manufactured by the exhibiters; a light wood beam plough, price 2*l.* 10s.; and a wood beam deep plough, price 6*l.* 15s., invented and manufactured by the exhibiters; a moulding or ridging plough, with trussed iron beam, wrought nose, &c., price £3 15s., invented, improved, and manufactured by the exhibiters; a moulding or ridging plough, with strong solid beam, price 4*l.* 5s.; and a moulding plough, with horse hoe and scarifier combined, price 5*l.* 10s., improved and manufactured by the exhibiters; a wrought iron horse hoe, price 1*l.* 15s., invented, improved, and manufactured by the exhibiters; several sets of improved iron harrows, price 2*l.* 7s. 6d. and upwards, improved and manufactured by the exhibiters; (new implement) an improved scarifier, with subsoil and broadshare ploughs combined, price 5*l.* 10s., invented, improved, and manufactured by the exhibiters; (new implement) a bundle of ash wood hay rakes, price 1s. 4d. each and upwards; and (new implement) a bundle of twitch rakes, price handled 3s. each, invented and manufactured by the exhibiters; a bundle of wood drag rakes, price 9s. 6d. each, improved and manufactured by the exhibiters; and an improved box double action mangle, price 10*l.*, improved and manufactured by Josiah Ison and Son, of Ashby-de-la-Zouch; an improved patent double blast corn dressing machine, price 12*l.* 10s. (a prize of 3*l.* was awarded to this machine by the Bath and West of England Agricultural Society, at Yeovil, 1856); and an improved corn blowing machine, price 5*l.* 10s., invented by Abraham Pridmore, of Syston, near Leicester, improved and manufactured by A. Pridmore and Son.

BARRETT, EXALL, and ANDREWES, of Reading, Berks.

An eight horse power portable steam engine, price with all necessary fittings 230*l.* (obtained the prize medal of the Great Exhibition of 1851, the prize at Lewes 1852, the high commendation of the same society at Carlisle 1855, the prize of 400 f. and silver medal at Paris 1856, the first gold medal at Vienna, and grand prize diploma at Pesth 1857); a twelve horse power double cylinder portable steam engine, price with all necessary fittings 310*l.*; a ten horse power horizontal fixed steam engine, price 230*l*, exclusive of carriage, brick-work, or masonry, but inclusive of fixing (obtained the prize of 10*l.* at the Carlisle Meeting in 1855, the first prize of 250 francs and gold medal of honour at Paris in 1856, the gold medal of honour at Vienna, and grand prize diploma at Pesth in 1857); a six horse power portable bolting and thrashing machine and gear, price on wood wheels with gear and levers complete 90*l.* net; a 54 inch steam power combined portable thrashing machine, price with wood wheels 96*l.*; a 60 inch steam power combined portable thrashing and finishing machine, price with wood wheels 110*l.*; a set of steam power fixed barn works, price exclusive of carriage 133*l.*; a patent safety chaff cutter, price 3*l.* 6s. 6d. (highly commended at the meetings of the Royal Agricultural Society of England at Lincoln and Carlisle); a patent safety chaff cutter for steam or water power, price 15*l.* (received the high commendation of the Royal Agricultural Society of England at the Lincoln and Carlisle Meetings); an oilcake breaker and pulverizer for horse or steam power, price fitted with clip for horse power 12*l.* 12s., for steam power as exhibited 13*l.* 13s.; an oat bruising and crushing mill, price 20*l.*; a two horse power portable steam engine and two horse power portable thrashing machine combined, price of engine 105*l.*, machine 26*l.*; a two horse power portable patent thrashing machine and horse gear, price complete to fix 31l. 16s. 6d., with travelling wheels as exhibited 38l. (received prizes, commendations, and medals from every Agricultural Society of note in England and Ireland, the prize of 250 francs and gold medal at Vienna, and grand prize diploma at Pesth in 1857); and a three horse power portable thrashing machine and horse gear, price complete to fix 40l. 3s., if portable 46l. 16s., all invented, improved, and manufactured by the exhibiters; a 24 inch patent endless band saw and frame, price 22l. 16s. net, improved and manufactured by the exhibiters; a 54 inch patent perforated beater drum fitted with spindle and rings, price 12l.; several sizes of a patent safety chaff cutter, price 5l. upwards to 12l. (highly commended at the meetings of the Royal Agricultural Society of England at Lincoln and Carlisle); a barley aveller for hand power, price 5l. (obtained the commendation of the Royal and other Societies); a paragon universal grain mill, price 3l. 6s. 6d. net; a paragon universal grain mill, price 8l. (obtained the prize medal of the Great Exhibition, besides others); a registered reverse action haymaking machine, price 14l. (obtained the prize of the Royal Improvement Society of Ireland at the Dublin Meeting in 1851, and the prize of the Royal Agricultural Society of England at Salisbury in 1857); a patent horse rake, for hay, &c., price 7l. 10s., another size 6l. 18s. (received the prize of the Great Yorkshire Society at Sheffield in 1852, also a first-class medal of the Royal Improvement Society at Galway); and a patent one horse gear and intermediate motion, price 14l. 17s. 6d. net, all invented, improved, and manufactured by the exhibiters.

William C. Cambridge, of St. Phillips Iron Works, Bristol.

An eight-horse power portable steam engine, price 230l.; a patent combined thrashing, shaking, riddling, winnowing and dressing machine, price 100l.; a five-horse power portable steam engine, price 180l.; a combined thrashing, shaking, riddling, and elevating machine, price 90l.; an improved two-and-a-half horse power portable steam engine, price 80l.; a small two-and-a-half horse thrashing machine, price 18l.; a portable two-horse power thrashing machine, price 36l.; a patent double blast winnowing machine, price 12l. 12s., other sizes 10l. 10s. and 8l. 8s.; and (new implements) five sizes of a new patent double-action press wheel roller, or clod crusher, price 13l. and upwards to 18l., all invented, improved, and manufactured by the exhibiter; three sizes of a patent self-relieving chain harrow, price 3l. 15s. to 6l., invented by John Cartwright, of Shrewsbury, improved and manufactured by the exhibiter; a new patent corn separator, or screen, price 8l., invented, improved, and manufactured by the exhibiter.

E. and T. Humphries, of Pershore, Worcestershire.

A portable combined thrashing machine, with straw-shaker, price 60l.; a portable combined thrashing, straw-shaking, riddling, winnowing, barley-horning, and sacking machine, price 83l., another size, price 93l.; and (new implement) a portable clover machine, to be driven by steam power, price 35l., all invented, improved, and manufactured by the exhibiters; a six-horse power portable steam engine, price 200l., invented, improved, and manufactured by Clayton, Shuttleworth, and Co., of Lincoln; and a pair of cider press screws, price 6l, invented, improved, and manufactured by the exhibiters: all the above sold at two and a-half per cent. discount for cash after trial.

Joshua Rea and Robert Burns, of Liverpool, Lancashire.

(New implement) a patent bone cutting and rasping mill of eight-horse power, price 130l., invented and improved by Robert Burns, and manufactured by the exhibiters; another size 72l. 10s.

Isaac James, of Tivoli Waggon Works, Cheltenham, Gloucestershire.

A patent liquid manure distributor, or water cart, price 24l., if with 1½ inch tap 1l. 7s. extra, invented, improved, and manufactured by the exhibiter (was awarded 2l. prize at the Salisbury show, also five other special prizes at different agricultural shows); a patent chaff and litter cutter, price 11l. 11s., invented and manufactured by W. F. Snowden, of Longford; an improved liquid or general portable pump, price 3l. 3s., suction pipe 2s. 4d. per foot extra, invented, improved, and manufactured by J. Warner, of London; an improved light, strong, one-horse cart for general purposes, price 11l. 11s., if with harvest thriples 30s. extra; and a patent liquid manure distributor, price 20l., invented and manufactured by the exhibiter; and a strong, light two or three-horse waggon for general purposes, price, as shown, 28l., to carry two tons, 22l., front and back ladders 20s. extra (awarded a special prize at the Royal Agricultural Society's Show at Salisbury).

Robert T. Smith, of Whitchurch, Shropshire.

A combined thrashing, shaking, riddling, barley-horning, winnowing, screening, and sacking machine, price £100 net cash, if without barley horner and on smaller wheels £90 ditto, invented, improved, and manufactured by the exhibiter; a six-horse power portable high pressure engine, price on wood wheels, with waterproof cover, £195, invented, improved, and manufactured by R. Bach and Co. of Birmingham; a seven-horse power fixed steam engine, price, fixed complete, exclusive of brickwork and carriage, £175; and a strong cheese press, price upon large oak bench £3 3s. if on iron bench with castors £2 17s. 6d., improved and manufactured by the exhibiter; an improved clod crusher or wheel roller, price with wheels 24 inches diameter £12 10s., if 20 inches diameter (the usual size) £11, if 16 inches, £9 5s., and an iron field roller, price £10 10s, invented, improved, and manufactured by the exhibiter; a patent root pulper (marked R P A), price £8 8s., pulley extra, £1 10s., another size, £6 6s., and a patent light iron broadshare plough, price £5 15s. 6d., invented, improved, and manufactured by Edward Hammond Bentall, of Heybridge; several sizes and descriptions of a patent iron plough, price from £4 7s. 6d., skim coulter 5s. 6d., steel breast 7s, drag chain 2s. extra, and less according to size, and a set of patent four-beam iron harrows (marked No. 12), price £3 14s., invented, improved, and manufactured by James and Frederick Howard, of Bedford; several registered chaff cutting machines, with three and two knives, price from £4 10s. to £13, invented by John Cornes, sen., of Barbridge, improved and manufactured by James Cornes, of Barbridge (gained the first prize given by the Royal Agricultural Society of England for eleven years in succession); a two-knife chaff engine, price £2 7s. 6d, improved and manufactured by the exhibiter; a strong one-horse cart, price 13l. 13s., invented, improved, and manufactured by the exhibiter; an improved chain harrow, price 3l. 10s., and an expanding horse hoe, price 1l. 15s., improved and manufactured by the exhibiter; one set of improved trussed whippletrees, for a pair of horses, price 9s. 6d., invented by Mr. Harding, Old Springs, and manufactured by the exhibiter; a patent turnip cutter, on iron frame, price 4l. 10s., invented by Edward Moody, late of Maiden Bradley, improved and manufactured by Charles Lampitt and Son, of Banbury (was highly commended by the Royal Agricultural Society at Lincoln, 1854, and at Carlisle, 1855); a turnip grater, price 3l. 10s., invented by Messrs. Bushe and Barter, of Lismore, Ireland, improved and manufactured by the exhibiter; a patent Gardner's turnip cutter for sheep, price 4l. 10s, if with wheels and handles 5l. 2s., invented by the late James Gardner, of Banbury, improved and manufactured by Bernhard Samuelson, of Banbury; a patent weighing-machine, to weigh 3 cwt., price 3l. 16s., invented, improved, and manufactured by Messrs. Day and Millward, of Birmingham (received a prize at the Great Exhibition in 1851); a patent drag harrow, cultivator, or scarifier, price 7l. 5s., invented, improved, and manufactured by Mr. Coleman, of Chelmsford; a light cultivator with three wheels, price 3l. 10s.; a leverage cultivator with nine prongs, price 5l. 10s, and a leverage cultivator, price 4l. 15s.; invented, improved, and manufactured by the exhibiter; a turnip and mangel wurzel drill, for two rows, price 4l, 15s., another size 2l. 10s., improved and manufactured by the exhibiter; a machine for breaking oil cake, price 3l. 3s., another size 1l. 18s.; a cast iron pump, 4 in. bore, price 3l, 10s., and a sack truck, price 9s. 6d., invented, improved, and manufactured by the exhibiter; a strong cast iron furnace, price 1l. 10s., invented, improved, and manufactured by the Coalbrook-dale Company; a wrought iron field gate, price 1l. 1s.; an ornamental wrought iron wicket gate, price 1l. 10s.; a wrought iron hurdle, price 7s.; a strong cattle hurdle, price 5s. 8d.; a sheep hurdle, price 4s. 4d; a light sheep hurdle, price 3s.; a length of ornamental wire fencing, price including screw pin and painting 3s. 9d. per yard. ; two wrought iron hay racks, price 7s. 6d. each ; two cast iron mangers, price 8s. 6d. and 7s., invented, improved, and manufactured by the exhibiter.

E. R. and F. Turner, of St. Peter's Iron Works, Ipswich, Suffolk.

Several sizes of a roller mill for crushing linseed, oats, malt, barley, &c., price £18 18s., pulley for power 12s. extra, if turned and polished £1 extra, smaller sizes cheaper (obtained the prizes at the Royal Agricultural Society's meetings at Norwich 1849, Gloucester 1853, Lincoln 1854, Carlisle 1855—the last occasion on which a prize was offered) ; a linseed and corn crushing mill, price £42, pulleys extra according to size, and a patent crushing and grinding mill, price £28 ; a grinding mill, price, with pulley, £21 ; a corn grinding mill, price, with one pulley, £56, loose pulley £2 10s. extra ; a mill for grinding beans, peas, or Indian corn, price £4 10s., pulley 12s. extra ; a six-horse power horizontal steam engine, price £90 ; a two-horse power independent steam engine, price £85, set of iron wheels, axles, and pair of shafts £5 extra ; a two-horse power portable steam engine, price £105 ; a portable thrashing machine, price £40 ; a chaff cutter, price £11 11s., pulley for power, turned and polished, £1 extra ; a chaff cutter for hand power, price £7 ; two iron oilcake breakers, price £3 and £3 10s., and a gear work for one or two horses, with intermediate motion, price £12 10s.—all invented, improved, and manufactured by the exhibiters.

Caldow and M'Kinnel, of Palmerston Iron Works, Dumfries.

Three sizes of a patent cart turnip cutting machine, price 15*l.* 10s., smaller sizes to 9*l.* 9s. ; a turnip sowing machine, price 5*l.* 10s. ; and a wrought-iron field roller, price 9*l.* 10s., invented, improved, and manufactured by the exhibiters ; three sizes of a cast-iron skylight window frame, price 5s. and upwards to 16s., invented by the late John Affleck, of Palmerstone, improved and manufactured by the exhibiters ; two sizes of a cast-iron window, price 5s. and 7s., invented, improved, and manufactured by the exhibiters.

Richard Hornsby and Sons, of Spittlegate Iron Works, Grantham, Lincolnshire.

A twelve-horse power patent portable steam engine, price 360*l.* ; two eight-horse-power patent portable steam engines price 235*l.* and 250*l.* (the council medal was awarded to this engine at the Great Exhibition, 1851 ; it has also received the following first prizes of the Royal Agricultural Society of England, viz , 20*l.* at Lincoln, 1854 ; 10*l.* at Gloucester, 1853; 40*l.* at Lewes, 1852 ; 50*l.* at Exeter, 1850 ; and 50*l.* at York, 1848) ; a nine-horse-power patent portable steam engine, price 255*l.* ; an eight-horse-power horizontal fixture steam engine, price 205*l.* ; an improved portable steam-power thrashing machine, with superior straw-shaker complete, for large occupations, price 52*l.* 10s. ; a patent portable combined thrashing, shaking, and dressing machine, for preparing corn fos the finishing dressing machine, price 95*l.*, if with patent travelling axles 5*l.* extra (received the first prize of 20*l.* at the last trial of the Royal Agricultural Society of England, at Carlisle, 1855) ; an improved patent portable combined thrashing, shaking, and dressing machine, price 110*l.*, if with patent travelling axles 5*l.* extra ; an improved patent ten-horse-power fixture combined thrashing, shaking, and dressing machine, price 120*l.*, if with weighing machine, &c., 7*l.* 10s. extra ; an improved patent eight-horse-power ditto, price 115*l.*, if with weighing machine, &c., 7*l.* 10s. extra ; a patent corn dressing or winnowing machine, price 13*l.* 10s., (the council medal was awarded to this machine at the Great Exhibition, 1851 ; it also received the following first prizes from the Royal Agricultural Society of England, viz., 5*l.* at Lincoln, 1854 ; 5*l.* at Gloucester, 1853 ; 10*l.* at Lewes, 1852 ; 10*l.* at Exeter, 1850 ; 10*l.* at Norwich, 1849 ; 10*l.* at York, 1848 ; and 3*l.* at Newcastle, 1846) ; a smaller size, price 10*l.* 10s. (received the first prize of 5*l.* from the Royal Society at its last trial of this class of machinery at Carlisle in 1855, as well as the first prize of 5*l.* at a previous meeting at Gloucester in 1853) ; and an improved corn screen, price 5*l.* 10s. all invented, improved, and manufactured by the exhibiters ; a portable corn grinding mill, for steam power, price 33*l.*, other sizes 39*l.* 10s. and 60*l.*, if with crane 5*l.* 10s. extra, invented, improved, and manufactured by the exhibiters, and Messrs. Bloom and Chalkleys, Hitchin ; a double cake breaking or crushing machine, price 10*l.*, another size 4*l.* 4s. (received the council medal of the Great Exhibition, 1851 ; also the first prize of 5*l.* at the Lewes meeting of the Royal Agricultural Society of England, 1852 ; 5*l.* at Shrewsbury, 1845 ; 5*l.* at Southampton, 1844 ; and 5*l.* at Derby, 1843 ; a portable circular-saw bench, price £35, other sizes £20 and £15 ; a drilling machine for corn, seed, and general purposes, price complete £42 5s. (this drill has received the following first prizes from the Royal Agricultural Society of England : £5 at Salisbury 1857, £10 at Lincoln 1854, £10 at Lewes 1852, £15 at Norwich 1849, £15 at York, 1848, £15 at Newcastle-upon-Tyne 1846, £15 at Shrewsbury 1845, £10 at Derby 1843, £30 at Bristol 1842, and £25 at Liverpool 1841) ; a ten-row patent corn and seed drill, on an improved principle, price £28 (this drill received the council medal at the Great Exhibition of 1851, and the following first prizes from the Royal Agricultural Society of England : £10 at Carlisle 1855, £10 at Lincoln 1854, £10 at Gloucester 1853, £10 at Lewes 1852, £10 at Exeter 1850, and at the latter meeting a prize medal was awarded specially for its patent India-rubber tubes and for carriage steerage) ; an improved patent fore-carriage steerage, price £4 10s. (received the prize medal of the Royal Agricultural Society of England at Exeter, 1850) ; a twelve-row patent corn drill, price £31 ; a patent small occupation drill, price £19 5s. (received the Royal Agricultural Society's first prize of £2 at Salisbury 1857, £5 at Carlisle 1855, and £10 at Lewes 1852) ; a patent drill for turnips, mangold wurtzel, and manure, price £29 12s., all invented, improved, and manufactured by the exhibiters (the last has received the council medal at the Great Exhibition 1851, the first prize of £5, when fitted both as a ridge and flat surface drill, at the Royal Agricultural Society's meeting at Salisbury 1857, 5*l.* at Lincoln 1854, 10*l.* at Lewes 1852, 10*l.* at Exeter 1850, 10*l.* at Newcastle 1849, and 10*l.* at Shrewsbury 1845.

Oldham and Booth, of Kingston-upon-Hull, Yorkshire.

(New implement), a six-horse power combined bone mill and bone dust mill, price £220 ; (new implement) a four-horse power bone dust mill, price £90 ; another £85 ; and (new implement) a two-horse power bone mill, price £45, all invented, improved, and manufactured by the exhibiters ; and a double-action lifting screw, or Dutch cramp, price £3, invented and manufactured by the exhibiters ; another size, £1 10s. 6d.

Thomas Scragg, of Calveley, near Tarporley, Cheshire.

A single action tile machine, price £20, invented and manufactured by the exhibiter ; another a little smaller, price £17 ; a sample of drain pipes of different sizes, each 4 feet long, price of each pipe 1s., manufactured by the exhibiter.

Thomas Allcock, of Radcliffe-on-Trent, near Nottingham.

Three sizes of a chaff-cutter with two knives, price, delivered at Ratcliffe Station, £12, £5 10s. and £2 10s., invented, improved, and manufactured by the exhibiter.

Hugh Carson, of Warminster, Wilts.

Two sizes of a chaff-cutting engine, for steam or horse power, price £15 and £13 13s. (was highly commended by the judges of the Bath and West of England Agricultural Society, at their meeting at Yeovil, 1856) ; a chaff cutting engine for hand or horse power, price £8 10s. ; several specimens of a chaff-cutting engine, for hand power price £4 to £8 10s. all invented improved, and manufactured by the exhibiter ; a Moody's patent turnip cutter, for hand power, on wood frame, price £4 10s., invented by Edmund Moody, late of Maiden Bradley, improved and manufactured by the exhibiter (received the prize from the Bath and West of England Agricultural Society at Taunton June 1852, at Plymouth June 1853, at Tiverton June 1855, at Newton Abbott June 1857, was highly commended at Yeovil June 1856, highly commended by the judges of the Royal Agricultural Society at Gloucester July 1853, at Lincoln July 1854, and at Carlisle July 1855) ; a single cheese press, price £2 10s. (received the prize from the Bath and West of England Agricultural Society at Plymouth 1853, and was highly commended at the meeting of the same society at Tiverton 1855, and at Yeovil 1856) ; a double cheese press, price £5 5s. (awarded the prize at the meeting of the Bath and West of England Agricultuaal Society at Newton Abbott June 1857, and a silver medal at the meeting of the Royal Agricultural Society of England at Salisbury July 1857); several specimens of a wrought iron horse hoe, price £2 10s. and upwards, all invented, improved, and manufactured by the exhibiter.

James Payne, of Kirkcudbright.

(New implement) a patent adjustable scythe, price 12s. 6d., invented and manufactured by the exhibiter.

Thomas Rickett, of the Castle Foundry, Buckingham.

(New implement) a patent rotary steam cultivator, price 440*l.*, invented by the exhibiter, and manufactured by the Buckingham Castle Iron Works Company.

Clayton, Shuttleworth, and Co., of Lincoln.

A 12-horse power patent portable double cylinder steam engine with patent fire-box, price 340*l.*, if provided with pulley 2 ft. 6 in. diam. for driving slow motion machines 35s. extra; a 10-horse power ditto, price 285*l.*; an 8-horse power patent single cylinder portable steam engine, price 235*l.* (received the prize of 20*l.* at the Society's meeting held at Gloucester, 1853, also 10*l.* at Carlisle, 1855); a 6-horse power ditto, price 205*l.*; (new implement) a 7-horse power ditto, price 350*l.*; an 8-horse power outside cylinder portable steam engine, price 230*l.*, if with 3 ft. 6 in. pulley, 8 in. face, 3*l.* extra; a 7-horse power ditto, price 215*l.* (received the prize of 25*l.* at the Royal Agricultural Society's meeting held at Norwich, 1849, 25*l.* at Exeter, 1850, and a prize medal at the Great Exhibition, 1851); a 16-horse power fixed steam engine, price, exclusive of carriage, brickwork, or masonry, but inclusive of fixing, 360*l.*, reversing link motion 20*l.* extra; a 14-horse power ditto, price as above 320*l.*; a 12 horse power ditto, price as above 280*l.*; a 10-horse power ditto, price as above 240*l.*; an 8-horse power ditto, price as above 200*l.* (received the first prize of 20*l.* at the Society's meeting at Gloucester, 1853); a 6-horse power ditto, price, as above, 160*l.*; a 4-horse power ditto, price as above 120*l.*; a combined portable thrashing, shaking, and riddling machine, price 60*l.*; a combined portable single blower, thrashing, shaking, riddling, winnowing, chaff-separating, and barley horning machine, price with wood wheels 90*l.*, if with patent axles 5*l.* extra (received the prize of 20*l.* at the Society's meeting at Lewes, 1852, also 20*l.* at Lincoln, 1854); a combined single blower finishing machine, price with wood wheels 100*l.*, patent axles 5*l*, extra; a combined double blower finishing machine, price with wood wheels 110*l.*, patent axles 5*l.* extra (received a silver medal at the Society's meeting at Carlisle, 1855); a combined fixed double blower finishing machine, price, exclusive of carriage and fixing, but inclusive of supporting frame, 118*l.* 10s. (received the prize of 20*l.* at Gloucester, 1853); a set of fixed barn works, price 150*l.* (received silver medal and 10*l.* at the Society's meeting at Lewes, 1852, a silver medal at Gloucester, 1853, £20 at Lincoln, 1854, and 20*l.* at Carlisle, 1855); a portable mill for steam power, price 47*l.* 10s., with fast pulley only 2*l.* 10s. less (received the prize of 10*l.* at the Society's meeting at Norwich, 1849, 10*l.* at Exeter, 1850, 10*l.* at Gloucester, 1853, 5*l.* at Lincoln, 1854, and 5*l.* at Carlisle, 1855); two other sizes ditto, price 67*l.* 10s. and 82*l.* 10s.; and two sizes of a portable circular-saw bench, price 18*l.* and 35*l.*, all are invented, improved, and manufactured by the exhibiters.

John Fowler, jun., of 28, Cornhill, London.

A steam plough of 10-horse power, price 650*l.*, invented by the exhibiter, and manufactured by Robert Stephenson and Co., of Newcastle-on-Tyne, and Ransomes and Sims, of Ipswich; a Cotgreave plough adapted to steam power, price 80*l.*, and a steam plough of 7-horse power, price 420*l.*, invented by the exhibiter, and manufactured by Ransomes and Sims, of Ipswich.

John Gray and Co., of Uddingston, Glasgow, Lanark.

A portable steam-engine of 12-horse power, price £296; a portable steam-engine of 8-horse power, price £235; a portable steam-engine of 7-horse power, price £210; a horizontal fixed steam-engine of 10-horse power, price £230, and a horizontal fixed steam engine of 8-horse power, price £200, improved by William Waller, of Uddingston, and manufactured by the exhibiters; a vertical fixed steam engine of 7-horse power, price £115, manufactured by the exhibiters; a portable thrashing machine, price, with horse gear, £85, another size, price £70; a portable thrashing, shaking, and winnowing machine, price £96; a portable combined thrashing, shaking, winnowing, and finishing machine, price £105, and a fixed combined steam thrashing and finishing machine, price £100, improved by William Waller, of Uddingstone, and manufactured by the exhibiters; a corn-dressing machine, price £8 10s., manufactured by the exhibiters; a corn-dressing and finishing machine, price £15 10s., invented by J. H. Nalder, of Alvescote, and manufactured by the exhibiters; (new implement) a linseed and oat crusher, straw breaker, and gorse bruiser, price £12 10s., invented by William Waller, of Uddingstone, and maufactured by the exhibiters, another size £17 10s.; a grinding mill price £52 10s., with fast and loose pulleys £2 10s. extra, improved and manufactured by the exhibiters; a case of Gray's best two-horse ploughs, price, including case, £25; a two-horse Gray's best iron plough, price £4 15s.; a case of Gray's improved iron harrows, price £17 10s.; an improved iron harrow, price £4 4s.; an improved iron harrow for light land, price £2 15s.; a best double drill turnip sower, price £7 10s., with covering rollers 10s. extra, and a drill grubber, price £4, fitted as drill grubber, horse hoe, and field grubber £5 15s., all improved by John Gray, and manufactured by the exhibiters; a drill plough with double mould-board, price £4; a Gray's improved subsoil plough, price £7, if made light £6 6s., improved by John Gray, and manufactured by the exhibiters.

E. and B. Johnson, of Flookersbrook Foundry, Chester.

A ten-horse power high pressure fixed steam engine, price, including mechanics' time for fixing, but exclusive of masonry and carriage, £240; a six-horse power ditto, price as before £180; a four-horse power ditto, price as before £110; a small fire engine, or liquid manure pump, price £9 10s.; a circular saw bench, price £18; a grindstone and frame, price £5 2s. 6d.; a two-horse works, price £18; (new implement) a horse rake, price £5 10s., and a pair of garden chairs, price £1 5s., a bench for gardens or public places, price £1 5s., a wrought iron tree fence, price £1 12s.; a field stile, price £1 1s.; a wrought-iron gate, with cast-iron posts, price £4 15s.; a wrought-iron land roller, price £15, and a garden roller, price £2 10s., all invented improved and manufactured by the exhibiters; a Norfolk pig trough, price 5 ft. long £1 4s., 4 ft. long 20s., 3 ft long 16s., invented by Barnard and Bishop, of Norwich, improved and manufactured by the exhibiters; a circular pig trough, price 16s.; a hog trough with semicircular bottom and ends, price, 6 ft. long 12s., 4 ft. 9s., 3 ft. 7s., 2 ft. 5s., and a cast-iron ornamental flower stand, price, bronzed 15s., and a small gas apparatus for private consumers, price £45, all invented, improved, and manufactured by the exhibiters; a grass cutting machine, price £5 17s. 6d., invented by Budding, of Dursley, improved and manufactured by Ransomes and Sims, of Ipswich; a double action turnip cutter, price £5 10s., invented by Gardner, of Banbury, improved and manufactured by Ransome and Sims; a bean cutter, price £4, invented by G. A. Biddell, of Ipswich, improved and manufactured by Ransome and Sims, of Ipswich; a bean and oat crusher, price £5 5s., and a gorse mill, price £10, invented, improved, and manufactured by Richmond and Chandler; a sack-weighing machine, price £4 4s, and a bean and oat bruiser, price £6 10s., invented, improved, and and manufactured by R. Forshaw, of Liverpool; a chaff cutter, price £6 15s., invented by John Cornes, sen., of Barbridge, improved and manufactured by James Cornes, of Barbridge (has gained numerous prizes at the Royal Agricultural Society's shows), and an oilcake breaker, price £2 10s., invented, improved, and manufactured by R. Forshaw and Co., of Liverpool.

Maplebeck and Lowe, of Birmingham, Warwickshire.

A winnowing machine, price £7, if fitted with spiked roller instead of rake 20s. extra, another size £9, improved and manufactured by the exhibiters; a chaff cutting machine with three knives, price £13 (gained the first prize given by the Royal Agricultural Society of England for eleven years in succession), and a chaff cutting machine with two knives, price £10, invented by John Cornes, sen., improved and manufactured by James Cornes, of Barbridge; a chaff cutting machine with two knives, price £10, invented, improved, and manufactured by Richmond and Chandler, of Salford—smaller sizes from £8 10s. down to £2 10s.; a patent steel oil mill, price £3 15s., and a patent bean cutter, price £4, invented by G. A. Biddell, of Ipswich, improved and manufactured by Ransomes and Sims, of Ipswich; an improved corn crusher for hand power, price £4 10s., improved and manufactured by the exhibiters; an improved corn crusher, price £6 10s., invented, improved, and manufactured by Richmoud and Chandler, of Salford; an improved oilcake breaker, price 63s., improved and manufactured by the exhibiters; a registered double action oilcake breaker for sheep and oxen, price 70s., invented, improved, and manufactured by Smith and Ashby, of Stamford; a double action oilcake breaker for sheep and oxen, price 90s., invented, improved, and manufactured by Selby Hand, of Glinton; a patent turnip cutter, price 80s., invented by the late James Gardner, of Banbury, improved and manufactured by the exhibiters (a silver medal was awarded to the exhibiters for this implement at the Northampton meeting of the Royal Agricultural Society of England); a patent root pulper, price £6 6s., another size £5 5s., invented and manufactured by E. H. Bentall, of Heybridge; an oak barrel churn, price 57s. 6d., a larger size 65s., improved and manufactured by Robinson, of Coventry; a single cheese press, price 50s., another kind price 72s. 6d., and a double cheese press, price £5, manufactured by the exhibiters; a curd mill or grinder, price 30s., improved and manufactured by the exhibiters; a patent iron plough, price 92s. 6d., skim coulter and drag chain 7s. 6d. extra (has received 13 first prizes from the Royal Agricultural Society of England), and a set of patent jointed harrows, price 80s., invented and manufactured by J. and F. Howard, of Bedford; a Mercote balance scarifier or tormentor, price 55s., a smaller size 45s., invented by Luke Pearman, Esq., of Mercote Hall, and manufactured by the exhibiters; a chain harrow, price 60s., another size 70s., improved and manufactured by the exhibiters; a cast iron field roller, price £11, manufactured by the exhibiters; a single row turnip and mangold wurtzel drill, price 52s. 6d., and a double row ditto, price 90s., invented, improved, and manufactured by Rhodenhurst, of Drayton; a three row corn drill, price 90s., and an expanding horse hoe (highly commended by the judges of the Royal Agricultural Society's meeting at Salisbury, 1857), price 40s., improved and manufactured by the exhibiters; a patent horse rake, price £8 10s., invented and manufactured by J. and F. Howard, of Bedford; a set of improved trussed whippletrees, price, wood 9s. 6d., iron 10s. 6d. per set, invented by E. W. Harding, of Old Springs, and manufactured by the exhibiters; several sizes of an improved platform weighing machine, price with weights complete 65s. and upwards, and several sizes, sets, and specimens of weighing machines, price 45s. and upwards, all improved and manufactured by W. and T. Avery of Birmingham; a set of patent draining tools, price 39s., invented by Josiah Parkes, Esq., of London, improved and manufactured by W. A. Lyndon, of Birmingham (the prize of £5 was awarded to the exhibiters for these tools, at the Royal Agricultural Society's meeting at Northampton, 1847; also at Lewes, 1852); a set of patent draining tools, price 23s. (the prize of £5 was awarded to the exhibiters for these tools at the Royal Agricultural Society's meeting at Northampton, 1847), and several bundles of patent spades, shovels digging forks, hay forks, unloading forks, pitchforks, border forks, manure forks, potato forks, and barley forks, prices various, according to quality, from 1s. 10d. upwards, all improved and manufactured by W. A. Lyndon, of Birmingham; a bundle of bright cast steel spades (assorted), price 4s. 9d. and upwards, invented and manufactured by Francis Parkes, of Stonehouse; a bundle of round-nose gravel or railway shovels, price 24s. per doz., a pair of hand drag rakes, price 8s. 6d. each and upwards, and a pair of black pulley blocks with iron sheaves, price, small 7s., large 30s. per pair, all manufactured by the exhibiters; a pair of best warranted extra leathered double nailed smiths' bellows, price 63s., and an improved portable forge, price 84s., manufactured by J. Onions, Birmingham; a best warranted anvil, price 28s. per cwt., an improved black staple vice, price, small 10s. 6d., large 17s. 6d., a pair of iron arms and boxes, price, 2 inch 15s., 2½ inch 24s. per pair, and a mail patent axle, with long bolts, price 1⅝ inch 27s. 6d., 1½ inch 30s. each, manufactured by the exhibiters; a bundle of best made fencing wire, price 13s. per cwt., manufactured by Evers, of Cradley; an instrument for straining wire, price 44s., an improved lifting jack, price £5, another size £10, a wooden wheelbarrow, price 25s., an iron wheelbarrow, price 30s., an iron sack cart, price small 9s. 6d., larger 16s. 6d., and a wood frame sack cart, price small 12s. 6d., larger 15s., manufactured by the exhibiters; a set of imperial iron bound measures, price 32s. 9d., manufactured by Ranford, of Willow Walk; an improved hand road scraping machine, price 70s., manufactured by Bourne and Harris, of Somerset; a set of cast iron stable furniture, price the complete set 80s., improved and manufactured by the exhibiters; a set of improved cast iron stable furniture, price, ornamental division, with bottom cill and heel post (without wood work) 95s., manger, rack, and water trough 40s., guttering with loose cover 2s. 3d. per foot, improved and manufactured by Dowall and exhibiters, of Birmingham; a bundle of black and galvanized cart and plough traces, price black 4d., and galvanized 5½d. per lb., manufactured by the exhibiters; an improved Leamington kitchen range, price £5 10s., another size £9, improved and manufactured by the exhibiters; a pair of wrought iron carriage gates, price £20, a strong wrought iron field gate, price 20s., a wrought iron tubular field gate, price 30s., posts for ditto 25s., a pair of wrought iron self-acting gates, price 25s., a specimen of wrought iron fencing, with pilasters, price from 3s. 6d. to 5s. per yard, and a length of continuous fencing, price 2s. 6d. per yard, all manufactured by the exhibiters; a patent double action mangle, price £10 10s., and a linen press, price 55s., improved and manufactured by the exhibiters; a portable iron bedstead, price 10s. 6d., manufactured by the exhibiters; a water or manure pump, price 52s., manufactured by Stock, of Birmingham; an improved garden engine, price £5, and an iron garden roller, price 45s., manufactured by the exhibiters; a patent lawn mowing machine, price £6, invented by E. Budding, improved and manufactured by Ferrabee, of Thrupp Mills; (new implement) a patent lawn mowing and rolling machine, price £7 10s., invented, improved, and manufactured by Shanks, of Arbroath; a pair of new pattern Berlin black Grecian vases, price 5*l.*, manufactured by the exhibiters; four pairs of cast iron vases and pedestals, price per pair, small fluted 70s., medium fluted 5*l.* 10s., Medici 9*l.* 10s., antique 11*l.* 10s., and a cast iron vase and pedestal, price, Warwick 10*l.*, Tazza 40s., large fluted 7*l.* 15s., leaf pattern 95s., lotus 55s. each, manufactured by Handyside, of Britannia Foundry; a pair of rustic pattern garden seats, price 45s., designed and manufactured by the exhibiters; a pair of Grecian ditto, price 55s., manufactured by the exhibiters; a pair of new rustic pattern garden seats with arms, price 60s., and a pair of new rustic pattern hall chairs with arms, price 55s., designed and manufactured by the exhibiters; a pheasant feeder, price 5s., improved and manufactured by the exhibiters; a specimen of vermin traps, price, rabbit 16s., Dorset 21s., improved Warwick 27s., hawk 30s., rat 8s. 6d., small bird 5s. 6d., mole 5s. per dozen, manufactured by the exhibiters; and a stand of models.

RICHARD BACH, of Birmingham, Warwickshire.

A six horse portable steam engine on wheels, price £195, and a two horse fixed high pressure steam engine, price £34, invented and manufactured by the exhibiter.

SAMUEL HENTON, of 7, Bridge-street, Lambeth, Surrey-side Westminster-bridge, London.

Two patent elastic riding saddles and one lady's side saddle, price, gentleman's saddle £5 10s., lady's ditto £8 8s, invented and manufactured by the exhibiter.

WILLIAM OVERTON, of Wrexham, Denbighshire.

A Newcastle prize one-horse cart, price £12 10s., curved raves £2 extra; a Newcastle or model one-horse cart, price £14 5s., with shelving £1 10s. extra (received the prize at the Newcastle meeting of the Royal Agricultural Society, in competition with forty-two others); an improved small pattern patent self-cleaning roller, price, 6 feet long £17 10s., with travelling wheels £2 extra (has received several medals and prizes of the Royal Agricultural Society, and the council great medal of the Great Exhibition of 1851); and a pair of patent cart wheels and axles, price £7, invented and improved by

William Crosskill, of Beverley, and manufactured by Alfred Crosskill, of Beverley (these articles have received several medals of the Royal Agricultural Society); a patent press-wheel roller or clod-crusher, price £15, invented and improved by Wm. Cambridge, of Bristol, and manufactured by John Cartwright, of Shrewsbury (received the Royal Agricultural Society's prize at Chelmsford, 1856); a patent double-action and reverse-motion haymaking machine, price £15 15s., invented, improved, and manufactured by Smith and Ashby, of Stamford (upwards of thirty first-class prizes have been awarded this implement); a patent iron plough, price £4 12s. 6d, skim coulter 5s. 6d. extra.(received the first prize for general purposes and the first prize for light land at the Royal Agricultural Society's exhibition at Chelmsford, in 1856); a patent horse rake with steel teeth, price £8 (two first-class prizes of the Royal Agricultural Society bave been awarded this implement), and a set of patent jointed harrows, price £4 10s., invented, improved, and manufactured by J. and F. Howard, of Bedford; an iron pony plough with one wheel, price £2 2s., and a patent trussed beam iron plough, price, with two wheels £4 12s. 6d., with skim coulter 5s. 6d. extra, both invented, improved, and manufactured by Ransomes and Sims, of Ipswich (the latter has received the Royal Agricultural Society's prize of £10 and a silver medal as the best heavy land plough, and prize of £10 and silver medal as the best light land plough at the Royal Agricultural Society's meeting at Southampton); a patent expanding harrow, price £4, invented and improved by R. Coleman, and manufactured by R. Coleman and Sons, of Chelmsford; a patent self-relieving chain harrow, price £4 15s., invented, improved, and manufactured by John Cartwright, of Shrewsbury; an improved lever cultivator or grubber, price £5 10s.; an iron plough with two wheels, price £3 16s.; a parallel expanding horse hoe, price £1 17s. 6d.; a chaff cutter, price £2 8s., with rising mouth 7s. extra, and an improved lever cheese press with screw and bevilled wheels, price £3 5s., all invented, improved, and manufactured by W. and J. Rodenhurst, of Market Drayton (the latter has since received a prize at every local meeting where it has been shown); an exhibition pattern platform weighing machine, price £4, invented, improved, and manufactured by W. and T. Avery, of Birmingham; an improved horse hoe, price £2 5s., invented, improved, and manufactured by Thomas Tilston, of Llai, Denbighshire; a registered Budding's lawn-mowing machine, price £5 17s. 6d., invented by E. Budding, of Dursley, improved and manufactured by B. Samuelson, of Banbury; patent prize root pulper (marked R. P. C.), price £5 5s., invented, improved, and manufactured by E. H. Bentall, of Heybridge, near Maldon; a patent Gardner's turnip-cutter (double action), price £7 2s., invented by the late James Gardner, of Banbury, improved and manufactured by B. Samuelson, of Banbury, (has been awarded five prizes by the Royal Agricultural Society of £5 each, and is like the one which obtained the Royal Agricultural Society's prizes at Lewes in 1852 and Great Exhibition in 1851); an economic chaff cutting machine, price £3 15s., another size £7 9s., and a prize corn crusher, price £6 10s., invented, improved, and manufactured by Richmond and Chandler, of Manchester; a chaff machine (patented in 1857), price £7 12s. 6d., invented, improved, and manufactured by Picksley, Sims, and Co., of Leigh, Lancashire; a patent broad-share plough (marked L. W. B.), price £5 5s., invented, improved, and manufactured by E. H. Bentall, of Heybridge, near Maldon, Essex (has taken twenty-eight first-class prizes at the various agricultural societies' shows); an American iron-pointed horse rake, price £1 18s., manufactured by A. and T. Fry, Bristol; several rolls of galvanized wire netting, price 4d. per superficial foot, and 9d. per lineal yard, invented, improved, and manufactured by T. P. Hawkins, of Birmingham; a strong iron wheelbarrow, price £1 10s., and an iron sack-barrow, price 15s., invented, improved, and manufactured by the Coalbrookdale Company, Shropshire; a bundle of spades (assorted), price 5s. 6d. and 6s., invented, improved, and manufactured by Edward Davies, of Cœrgwyrley, Flintshire; a bundle of three couch-grass rakes, price 3s. 6d., 4s., and 4s. 6d. each, invented, improved, and manufactured by W. Gilpin and Co., of Walsall; a cast-iron round-bottom pig trough, price 4s. 6d. and upwards; a cast-iron manger, price 8s.; a cast-iron corner manger, price 14s., and a wrought-iron cattle hurdle, price 5s. 8d., invented, improved, and manufactured by the Coalbrookdale Company, of Shropshire.

James Smyth and Sons, of Peasenhall, Suffolk, and Witham, Essex.

A patent three-rowed turnip or mangel wurzel seed and manure drill, price £16; (new implement) an improved broadcast manure distributor, price £14; a five-rowed turnip or mangel wurzel seed and manure drill, price £25 10s.; a patent general purpose drill, price £40 10s. (gained a prize of £10 at the Royal Agricultural Society's meeting in 1841 at Liverpool); a patent nine-coulter Suffolk lever corn drill, price 26*l.* 10s.; a patent small occupation Suffolk lever corn drill, price 15*l.* (received a prize of 5*l.* at the Society's meeting at Gloucester in 1853, also at their meeting at Lincoln in 1854); a patent eleven coulter ditto, price 25*l.* 10s., a patent thirteen-coulter ditto, price 32*l.*, a patent fourteen-coulter ditto, price 28*l.* 10s., and a patent fifteen-coulter Suffolk ditto, price 30*l.*, all invented, improved, and manufactured by the exhibiters; a Kaemmerer's patent broadcast seed-sowing machine, price 13*l.* 10s., invented by Captain Ernst Kaemmerer, of Bromberg, Prussia, and improved and manufactured by the exhibiters, and a patent twenty-four coulter seed drill, price 26*l.*, invented, improved, and manufactured by the exhibiters.

W. S. Underhill, Newport, Salop.

A five-tine cultivator, price 4*l.* 10s., a seven-tine ditto, price 6*l.*, a nine-tine ditto, price 7*l.* 10s., and an eleven-tine ditto, price 11*l.*, all invented, improved, and manufactured by the exhibiter; two sizes of an iron plough, price 3*l.* 10s. and 4*l.* 5s., flays 5s. each extra; a ridging plough, price 3*l.*; two sizes of a grubber, price 2*l.* 5s. and 2*l.* 15s.; two sizes of a horse hoe, price 1*l.* 5s. and 1*l.* 18s. 6d.; a seed drill, price 3*l.* 10s, and (new implement) a hand ryegrass or cloverseed drill, price 3*l.* 10s., all improved and manufactured by the exhibiter; three sizes of seed harrows, price 2*l.* 15s., 3*l.* 10s., and 4*l.* 10s.; a pair of ridge harrows, price 1*l.* 10s., and a chain harrow, price 2*l.* 10s. and 3*l.*, manufactured by the exhibiter; (new implement) a chain roller or clod crusher, price 24*l.*; an improved haymaker, price 14*l.* 14s. (took the first prize at the North Staffordshire Agricultural Society's meeting at Stafford, in 1857), and an improved balance ball and oval tooth lever horse rake, price 6*l.*, invented, improved, and manufactured by the exhibiter; a wrought-iron sheep rack, price 3*l.* 10s., improved and manufactured by the exhibiter; a cow crib, price 1*l.* 10s., manufactured by the exhibiter; a cattle probe, price 3s. 6d., invented by William Paddock, of Caynton, Newport, Salop, manufactured by the exhibiter; a three-horse power steam engine, price 50*l.*, manufactured by the exhibiter; a compound lever cheese press, price 3*l.*, improved and manufactured by the exhibiter; a new patent wringing machine and mangle, price 3*l.* 3s., invented and manufactured by the exhibiter.

Charles Clay, of Walton, near Wakefield, Yorkshire.

Four specimens of (new implement) a patent twitch-grass eradicator, land cultivator, scarifier, and drag harrow, price 10*l.* 10s. and upwards, invented and manufactured by the exhibiter.

John Churton, of Chester.

A garden seat, price £1 10s. manufactured by E. & B., Johnson, of Chester; a wrought iron folding garden chair, with elbows, price 15s. 6d.; a wrought iron folding garden chair, folds up in a small compass, price 12s. 6d.; a galvanized French garden portable seat, price 5s. 6d.; a rustic garden chair for one person, price 7s. 6d.; a rustic garden seat for two persons, price 12s. 6d.

George Chivas, of Chester.

Three sizes of a patent root pulper, price £5 5s. and upwards, invented, improved, and manufactured by E. H. Bentall; a patent root pulper, price £6 10s., invented by Fred. Phillips, of Brandon, improved and manufactured by James Woods, of Stowmarket; a patent root pulper, price £4 10s., invented and manufactured by Samuelson, of Banbury; different sizes, single and double action, of a patent turnip cutter, price £4 10s. and upwards (obtained the Royal Agricultural Society's prize at Norwich 1849, Exeter 1850, Gloucester 1853, Lincoln 1854, and numerous local shows), invented by the late James Gardner, of Banbury, improved and manufactured by Bernard Samuelson, of Banbury; a registered chaff cutting machine, with three knives, price £13 (gained the first prize given by the Royal Agricultural Society of England for eleven years in succession), invented by John Cornes, sen., of Barbridge improved and manufactured by James Cornes, of Barbridge; several sizes of a registered chaff cutting machine, price £4 10s. and upwards; and a small chaff cutting machine, with two knives, price £2 15s., invented, improved, and manufactured by James Cornes, of Barbridge; a premium chaff cutter, price with pulley £10 9s.; a newly improved ditto, price £7; an economical ditto, £4 10s.; and two sizes of a corn crusher, price £5 5s. and £6 10s., all invented, improved, and manufactured by Richmond and Chandler, of Manchester; a registered crushing and grinding mill, price £10 10s.; and a hand roller universal mill, price £5 15s., invented, improved, and manufactured by James Woods, of Stowmarket; two sizes of an oilcake breaker, price £3 3s. and £5 5s., invented, improved, and manufactured by W. N. Nicholson, of Newark; a roller mill, price £5 15s.; and a cake breaker, price £3 15s., invented, improved, and manufactured by Bernhard Samuelson, of Banbury; three sizes of a prize winnowing machine, price £6 and upwards, invented and manufactured by John Windsor, of Oswestry; an improved double action haymaking machine, price £15 (the prize of the Royal Agricultural Society was awarded at Salisbury to this machine), invented and manufactured by W. N. Nicholson, of Newark; a patent steel tooth horse rake, price £8 (the three last prizes of the Royal Agricultural Society of England were awarded to this implement); several sets of three four-beam patent light harrows, with whippletrees, price £3 14s. and upwards (six first prizes of the Royal Agricultural Society of England have been awarded, and also three gold medals of honour at the Paris Exhibition); a new patent subsoil plough, price £5 15s. (the Royal Agricultural Society awarded a first prize to this implemenf, and also at the Chelmsford meeting in 1855); a patent iron plough, with two wheels, price £5 10s. (received the first prize of the Royal Agricultural Society's meetings at Liverpool, Bristol, Shrewsbury, Northampton, York, Norwich, Exeter, Lincoln, and Chelmsford); a patent swing plough, price £4 5s. 6d.; a patent iron dwarf plough, price £2 15s.; an improved horse hoe, with two wheels, price £3; an improved horse hoe, price £2 15s.; a wrought iron lever scarifier, price with seven coulters £7 10s.; an improved wrought iron scarifier, price £5; a set of trussed whippletrees, price 17s. 6d and a set of trussed whippletrees, price 11s. 6d., all invented and manufactured by J. & F. Howard, of Bedford; a set of whippletrees, price £2 10s., invented by the Marquis of Tweeddale, and manufactured by J. & F. Howard, of Bedford; a set of improved three-horse equalizing whippletrees, price £1 6d.; a double mouldboard plough, price £3 5s.; an improved prize iron plough, price with additional sock and coulter £4 4s.; and a scarifier, with extra prongs, adapting it also for a light green crop cultivator, price £3 3s., invented and manufactured by Wm. Harkes, of Lowstock; a double mouldboard plough, price £4 5s. (was awarded the only prize ever offered by the Royal Agricultural Society of England at Chelmsford meeting 1856), invented and manufactured by J. & F. Howard, of Bedford; three sizes of a patent broadshare and subsoil plough, price £5 15s. 6d., £6 6s., and £7 17s. 6d. (received the prize of the Royal Agricultural Society at Exeter and Lincoln, three prizes at Chelmsford, and the first prize at the Bath and West of England Show at Newton June 1857, also two medals at the great Exhibition 1851), invented and manufactured by E. H. Bentall, of Maldon; a prize cultivator, to be used either as a parer or cultivator, price £7 10s., invented and manufactured by Coleman, of Chelmsford; a Newcastle or model one horse cart, price £15 15s.; a light Newcastle cart, price £14 10s.; and a York prize cart, price £12 (received the prize at York in 1853 for its simple and novel construction), invented, improved, and manufactured by Crosskill, of Beverley; a Cambridge patent press roller or clodcrusher, price £13 10s., invented by William Cambridge, of Bristol, and manufactured by Bernhard Samuelson, of Banbury; an improved field roller, price £9 2s., manufactured by Bernhard Samuelson, of Banbury; a patent clodcrusher, 6 ft. by 24 in., price £15 10s., invented and manufactured by Crosskill, of Beverley; a patent prize corn and seed drill, price £23 10s., invented and manufactured by Hornsby, of Grantham; an improved grass seed drill, price £13 10s., invented and manufactured John Windsor, of Oswestry; a double row turnip and mangel wurzel drill, price £5; and a single row turnip and mangel wurzel drill, price £2 10s., invented and manufactured by W. & J. Rodenhurst, of Market Drayton; three sizes of a cheese press, price £2 10s., £2 15s., and £3, invented and manufactured by James Cornes, of Barbridge; several sizes of a patent American churn, price, to hold 4 quarts of cream £1 15s. and upwards to hold 20 quarts £3 3s. (received prizes at all the meetings of the Royal Agricultural Society since its introduction, including one at Carlisle and at the Great Exhibition 1851), invented by J. C. Anthony, of America, and improved and manufactuaed by Burgess and Key, of London; a portable platform machine, for weighing sacks of flour, corn, &c., price £4 4s., invented and manufactured by W. & T. Avery, of Birmingham; a bundle of improved registered tubular iron rakes, price 16s. 6d.; a bundle of wood drag rakes, price 10s. and upwards; a bundle of couch rakes, price 3s. 6d.; a bundle of two-peck iron root or chaff scuttles, price 2s. 6d.; a bundle of three-peck scuttles, price 3s. 3d.; a bundle of four-peck scuttles, price 4s.; a bundle of two-peck galvanized scuttles, price 3s. 6d.; a bundle of three-peck ditto, price 4s. 3d.; a bundle of four-peck ditto, price 5s. 3d.; a bundle of iron filling scuttles, price 2s. 6d.; a bundle of root or chaff scuttles, price 7s. and upwards; a bundle of iron buckets, price 1s. 8d.; a bundle of galvanized iron buckets, price 2s. 3d.; a bundle of iron baskets, price 2s. 6d.; a bundle of galvanized baskets, price 3s.; a light wood garden chair, price 17s. and upwards; a light wood garden chair with arms, price 20s. and upwards; a poultry fountain, price 7s. and 10s. 6d.; (new implement) a set of galvanized linseed cake measures, price 3s. for a set of three; and a bundle of sack trucks, price 12s., all manufactured by Warren Sharman, of Melton Mowbray; a galvanized barrel manure pump, price £2 5s., manufactured by Bernhard Samuelson, of Banbury; a wrought iron stile, price £1 1s., invented and manufactured by E. and B. Johnson, of Chester; an improved patent pig trough, price £3 5s., invented and manufactured by Crosskill, of Beverley; a circular pig trough, price 12s. 6d. and upwards, manufactured by E. and B. Johnson, of Chester; an improved lawn mowing machine, price, 22in., £7 10s.; and an improved grass mowing and rolling machine, price £6 10s. and £6 17s. 6d., invented and manufactured by A. Shanks & Son, of Arbroath; several sizes of a cast iron garden roller, price from £1 17s. 6d. to £3 18s., manufactured by Bernhard Samuelson, of Banbury; a web of strong japanned premium hare and rabbit proof wire netting, price 6d., 9d., 1s., 1s. 3d., 1s. 6d., 2s., 2s. 6d., and 3s. per lineal yard, according to size, manufactured by C. D. Young and Co., of Liverpool; a web of japanned peg lattice wire, price per lin. yard 30in. high (other heights in proportion) ¾in. mesh 2s. 3d., manufactured by J. P. Hawkins, of Birmingham; a galvanized portable hen coop, price 8s. 6d; a game proof wire guard, price 2s. and upwards, manufactured by the exhibiter; a bundle of spiral wire trainers, price 2s. 6d. and upwards; a bundle of galvanized French garden portable seats, price 5s. 6d. each; a wrought iron folding garden chair, price 12s. 6d., another size 15s. 6d; a garden seat, price £1 10s., manufactured by E. and B. Johnson of Chester; a circular wire flower stand, price £1 5s.; a circular wire revolving flower stand, £1 4s.; an oval wire flower stand, price 18s.; a circular wire flower stand, with French stem, price £1 1s.; a quantity of Crystal Palace pattern suspending wire baskets, price from 6s. to 35s. each; a small garden tub engine to hold 14 gallons, price £5 5s., 10 gallons price £3 3s.; several sizes of a cast-iron garden vase and pedestal, price £4 and upwards; a bronzed Naples vase, price £3 10s.; a Tuscan vase and pedestal, price £3; a bundle of five-pronged cast steel digging forks, price 5s. each, and a bundle of four-pronged cast steel forks, price 4s. 3d. each, invented, improved, and manufactured by W. A. Lyndon of Birmingham; a bundle of three-pronged cast steel manure forks, price 3s. 6d. each; a bundle of cast steel five-pronged forks, price 4s. each; a bundle of cast steel four-pronged forks, price 3s. 3d. each, invented and manufactured by W. A. Lyndon of Birmingham; a bundle of American cast steel hay forks (two prongs), price 2s. 3d. each and upwards; a bundle of draining shovels, for taking the first graft, price 4s. 6d. each; a bundle of draining tools, for succeeding the above, price 6s. 6d. each; a bundle of draining tools, for taking the last graft, price 7s. 6d. each; a bundle of pipe layers, price 3s. 3d. each, and a bundle of scoops, price 3s. 6d. each, manufactured by W. A. Lyndon of Birmingham; a bundle of garden shovels, price 4s. each; an assortment of garden tools, price 7s. and upwards; a bundle of hedge pruners, price 4s. and upwards, manufactured by

Saunderson, of Dunse; a bundle of thistle extractors, price 3s. 3d. each; a bundle of dock forks, price 3s. 3d. each; (new implement) a patent chronometrical thermometer, price £7 10s., invented and manufactured by W. Gauntlett of South Bank Iron Works, Middlesborough; a corn screen, price £10s. 10s., invented and manufactured by Robey of Lincoln; two sizes of a washing, wringing, and mangling machine, price £5 and £7, invented by W. Summerscales and Son of Bradford; a patent sack holder, price £1 3s., invented by Henry Gilbert of London, improved and manufactured by Richmond and Chandler of Manchester; a collection of cast-iron pointed and beautifully bronzed conservatory tables, price £1 17s. and upwards; a cast-iron bouquet stand, price £2 2s.; a patent Archimedian root-washer, price £5 10s., invented by Captain Carr, improved and manufactured by Crosskill of Beverley; a collection of Milner's patent fire-proof safety boxes, price £5 and upwards; an iron tub, on wheels, fitted up as a water barrel, price £3 3s., manufactured by Warner and Son of London; a collection of twine sheep nets, price 8s. 6d. and upwards; a quantity of tiffany, for shading trees and plants from the sun, price 5s. and upwards, manufactured by John Shaw of Manchester, in pieces of 20 yards; a set of patent chain harrows, price £3 15s., invented, improved, and manufactured by Cartwright of Shrewsbury; (new implement) a scarifier for cleaning nursery grounds, price £5 5s., invented by A. F. Cromar of Eaton-road Nurseries, Chester, manufactured by the exhibiter; (new implement) a plough for covering potatoes grown in butts, price £4, invented and manufactured by Edward Davies of Walton, Warrington; a barley hummeller, price £4 10s., manufactured by B. Samuelson of Banbury; several sizes of a cast iron pig trough, price 7s. 6d. and upwards; a bundle of lopping shears, or guillotines, price 5s. 6d., 6s. 6d., and 7s, 6d.; a bundle of greenwood saws, price 2s. 3d., 3s. 6d., and 4s. 6d.; a bundle of turfing irons, for cutting sods, price 8s. 6d. each; a bundle of grass-edging irons, price 3s. 6d. and 4s. 6d.; a Brown's patent fumigator, for conservatories, price 10s. 6d.; a quantity of brass syringes, including Read's patent, price 19s. 6d., 14s., and 9s.; a quantity of glass milk pans, for dairy purposes, price from 1s. 3d. to 7s. each; a quantity of propagating glass, for horticultural purposes, price 1s. to 4s. 6d. each; a patent kneading apparatus (registered), price £5 5s., invented and manufactured by Charles Quinton of Cheltenham; (new implement) a cheese press, price £3 3s., £4 4s., and £5 15s., invented by Thewlis and Griffith of Warrington; a quantity of lime for agricultural purposes, manufactured by the Mineral Lime Company, Mineral Works, Wrexham; (new implement), a churning apparatus, with churn, price £11 15s., invented and manufactured by Thewlis and Griffith of Warrington; a sample of turnip and mangel manure, price £8 per ton, prepared bone £7 10s. per ton and upwards, manufactured by Proctor and Ryland; mixtures of natural grasses, price per acre £1 1s.; a quantity of Welsh red clover, price 9d. per lb.; a quantity of Alsike clover, a hybrid variety, price 1s. 6d. per lb.; a selection of grains; a selection of the above in the straw, grown by the exhibiter; a selection of grasses in a green state, namely, upwards of 150 varieties in separate cultivation at the Nursery Grounds of the exhibiter; bulbs of Chivas's orange jelly turnip, price 1s. 6d. per lb.

John Eaton, of Twywell Works, near Thrapston, Northamptonshire.

A corn-dressing machine and blower combined, price 8*l.* 10s.; (new implement) a corn-dressing machine and blower combined, price 7*l.*, clover purposes a finer sieve required 7s. extra; a patent turnip thinner, price 5*l.*, with frame and four hoes combined 6*l.* and upwards; a lifting jack, price 3*l.* 3s.; and an engine jack, price 1*l.* 1s., invented, improved, and manufactured by the exhibiter; a registered sheep crib, price 1*l.* 2s. 6d., invented by William Knight, Esq., of Titchmarsh, improved and manufactured by the exhibiter.

Hill and Smith, of Brierley Hill Iron Works, near Dudley, Staffordshire.

A screen for malt, &c., price 1*l.* 15s., manufactured by the exhibiters; (new implement) two sizes of a chaff-cutting machine, price 6*l.* and 12*l.*; and a chaff-cutting machine, price 6*l.* 10s. (obtained the premium at the Paris Agricultural meeting 1856), invented and manufactured by the exhibiters; a chaff cutting machine, price from 4*l.* 10s. to 13*l.*, invented by Mr. Cornes, of Barbridge, improved and manufactured by the exhibiters (this machine has on repeated occasions obtained the Society's prize for the best chaff-cutter for horse or steam-power); two sizes of a chaff-cutting machine, price 2*l.* 10s. and 35*l.*, invented and manufactured by the exhibiters; two sizes of a machine for crushing oats or beans, price 5*l.* 5s. and 6*l.* 10s., manufactured by the exhibiters; (new implement) a machine for breaking oilcake, price 3*l.* 5s. and 3*l.* 10s., invented and manufactured by the exhibiters; two sizes of a turnip-cutting machine, price 4*l.* 10s. and 5*l.* 10s., invented by Gardner, of Banbury, improved and manufactured by the exhibiters; two sizes of a turnip-grating or pulping machine, price 4*l.* 5s. and and 4*l.* 10s., invented by Moody, improved and manufactured by the exhibiters; a horse works, price 12*l.* 12s. and 14*l.* 14s., a premium wrought-iron light-land roller, price 10*l.* 10s. (obtained the prize as a light land roller at the Chelmsford meeting of this Society), (new implement) a wrought-iron barley roller, price 8*l.*; and a cast-iron land roller, price 14*l.*, invented and manufactured by the exhibiters; a cast-iron clod-crusher, price 10*l.* and upwards, invented by William Cambridge, of Bristol, and manufactured by the exhibiters (obtained the prize as a clod-crusher at the Chelmsford meeting of the Society); a wrought-iron stubble paring skim or light scarifier, price 5*l.* and 6*l.*, may be had with grubbing tines if required at an additional cost of 10s. (obtained a prize from this society); (new implement) a strong wrought-iron skim or broadshare, price 7*l.* 10s.; a strong wrought-iron broadshare, price 3*l.* 10s.; and a wrought-iron horse hoe, price 3*l.* 3s., invented and manufactured by the exhibiters (the last has obtained the silver medal of this Society); a set of Smith's patent wrought-iron harrows, price 2*l.* 15s. 6d. and upwards, invented by Henry Smith, of Brierley Iron Works, and manufactured by the exhibiters; two sets of patent self-relieving chain harrows, price 3*l.* 10s. and 4*l.* 15s., invented by Jno. Cartwright, of Salop, and manufactured by the exhibiters; two sizes of a granary or warehouse crane, price 7*l.* 10s. and 10*l.* 10s., invented and manufactured by the exhibiters (has obtained a prize from this Society); a rotary gravel screen, price 6*l.* 16s.; and a gravel screen, price 2*l.* 10s., manufactured by the exhibiters; a patent sack holder and sackbarrow combined, price 1*l.* 12s., invented by Henry Gilbert, of London, improved by Henry Cooch, of Harleston, and manufactured by the exhibiters; an iron portable forge, price 5*l.* 5s.; an iron portable Smith's work bench with vice attached, price 2*l.*; a sheep rack, price 4*l.* 4s. and 6*l.* 6s. (obtained the silver medal of this Society); and a wrought iron sheep trough, price 30s., invented and manufactured by the exhibiters (the last article obtained the silver medal of this Society at the Salisbury show); numerous specimens of different sizes of improved pig troughs, price from 2*l.* 5s. to 21*l.* 6s. each, manufactured by the exhibiters; (new implement) a registered pig trough, price 30s., invented by Mr. David Prosser, and manufactured by the exhibiters; (new implement) a set of cattle drinking troughs, price from 45s. to 65s. each, (new implement) a set of iron work for cattle sheds, total cost exclusive of timber 7*l.* 14s. 2d., an iron water tank, price 3*l.* 15s., (new implement) a wrought iron brewing and cooking boiler or copper to hold 150 gallons, price 9d. per gallon, a wrought iron rack feeding hurdle, with trough, price 35s., a wrought iron cattle crib, price 3*l.* 7s. 6d., and an iron wheel barrow, price 27s. 6d, invented and manufactured by the exhibiters; an iron wheelbarrow, for stables or ashes, &c., price 35s.; an iron swing barrow, price 40s., and an iron heating barrow for tar, &c., price 3*l.* 3s, invented and manufactured by the exhibiters; a set of iron arms and boxes, for carts and waggons of different sizes, price 30s. per cwt., an iron lifting jack for carriages, carts, &c, price 20s., a sack barrow or truck, price 15s., another size 20s., and a garden engine to hold 15 gallons of water, price 4*l.* 10s., manufactured by the exhibiters; a machine for salting gravel walks and carriage drives, price 13*l.* 10s., invented by Flemming, of Trentham Gardens, and manufactured by the exhibiters; a set of lawn mowing machines, from 2*l.* 10s. to 11*l.* 10s., invented by Budding, improved and manufactured by the exhibiters; a specimen of patent black varnish, price 1s. 6d. per gallon, invented and manufactured by the exhibiters; a specimen of galvanized game proof wire netting, poultry netting, &c, from 3d. per yard upwards, improved and manufactured by the exhibiters; a roll of galvanized sheep netting, price 11d. per yard; a specimen of game proof plant guards, price from 18s. per dozen upwards; a specimen of wrought iron tree guards, 12s. and 18s. each; a set of wrought iron ornamental garden seats, price from 32s. 6d. upwards; pair of rustic pattern garden seats, one for three persons 22s. 6d., and one single seat 14s.; a rustic table flower stand, price 22s. 6d.; and a pair of iron and wire ornamental garden seats, galvanized, one to hold three persons at 60s., and one for one person 42s., invented and manufactured by she exhibiters; a pair of folding garden or camp stools, manufactured by the exhibiters, price 4s. 6d. and 5s. 6d.; a wrought-iron garden seat, made of plain iron, to hold three persons, price 18s. 6d.; a wrought-iron field gate, and wrought-iron posts, with basements (the silver medal of this Society has been awarded to this gate, also the first prize of the Royal Agricultural Society of Ireland, besides nine other premiums from different provincial societies), price 2*l*. 10s.; a wrought-iron field gate, price 1*l*. 6s., another size 1*l*. 10s.; a wrought-iron field gate and iron pillars, price 3*l*. 10s. complete; a wrought-iron unclimbable gate, price 2*l*. 12s. 6d.; a wrought-iron entrance gate, with side gates and pillars, price of the set complete, 11*l*. 15s.; a wrought-iron entrance gate, price 3*l*. 13s.; a pair of wrought-iron ornamental entrance gates, price of the gates alone, 6*l*. 10s., complete 9*l*.; a pair of strong wrought-iron entrance gates, with spear heads, price 10*l*.; a wrought-iron gate fitted to cast-iron pillars, price 3*l*. 12s. 6d.; a wrought-iron field gate fitted to cast iron pillars, price 4*l*.; smaller size 1*l*. 5s.; a wrought-iron field gate fitted to wood posts, price 1*l*. 2s. 6d.; a wrought-iron entrance gate, with handsome octagonal pillars, price 12*l*. 12s.; a wrought-iron entrance gate, with plain octagon pillars, price 5*l*. 10s.; a pair of wrought-iron hand gates, fitted to self-acting cast-iron pillars, price 1*l*. 7s. 6d. and upwards; and a specimen of premium continuous sheep or light cattle fence, price 2s. 2d. per yard; all invented and manufactured by the exhibiters (the latter obtained the silver medal of this Society on two occasions): (new implement) a specimen length of continuous sheep or light cattle fence, with patented improvements, invented, improved, and manufactured by the exhibiters, price 2s. 3d. per yard; several specimens of premium continuous cattle, ox, deer, and shrubbery fence, price 2s. 5½d. per yard, and upwards; and a premium wrought-iron hurdle, price 4s. 1d., invented and manufactured by the exhibiters; (new implement) patent wrought-iron hurdles for sheep or oxen, invented by Henry Smith, of Brierley Hill Iron Works, manufactured by the exhibiter, price 4s. 4d. each, and upwards; premium wrought-iron hurdles for sheep or oxen, price 4s. 10d. each, and upwards, and a length of strong wrought-iron railing, unclimbable, price 18s. per yard, invented and manufactured by the exhibiters; a set of sheep-folding hurdles (two patterns), manufactured by the exhibiters, prices 17s. and 16s, each; a poultry or hen-coop, price 12s. 6d.; a length of strained wire ox fence, price without the vertical wires 1s. 9d. per lineal yard; a length of strained wire deer fence, price without vertical rods 1s. 11d., with ditto 7s. per lineal yard; a machine for tightening or straining wire fencing, price 2*l*. 2s.; an iron vermin proof rick stand, price from 4*l*. upwards; an oblong rick stand, price from 4*l*. 7s. 6d. upwards; a set of cast-iron rick stand pillars and tops, price 1*l*. 11s. 6d. per set, and upwards; a wrought-iron footpath or turnstile gate and posts, price 2*l*. complete; a stall division, price 1*l*. 15s.; a ventilating stall division, price 2*l*. 15s. and upwards; a loose box (showing three patterns), the price of either pattern per foot run is 6s. 6d., or if with deal boarding 1½ in. thick, 4s. 6d. per foot run extra, if with oak boarding 7s. 6d. per foot run extra, the posts which are 7 feet high 16s. each, and the panel for door 8s. each; a rack and manger may be had either to the right or left hand, price plain 1*l*. 10s., with manger enamelled 2*l*. 2s., the whole gal- 2*l*. 12s. 6d.; a rack, manger, and water-trough, price, plain 2*l*., with manger and water-trough enamelled 3*l*., the whole galvanized 3*l*. 7s. 6d.; a straight swivel manger, price, plain 1*l*., enamelled 1*l*. 17s. 6d., galvanized 2*l*.; a corner swivel manger, price, plain 1*l*., enamelled 1*l*. 17s. 6d., galvanized 2*l*.; a circular wrought-iron rack, price, plain 11s., galvanized 14s.; a corner rack, price, plain 8s. 6d., galvanized 11s. 6d.; a ventilator and air brick, price 12s. 6d.; another size 10s. each; a drain and trap, price 14s. 6d.; a horse pot, price 10s.: all invented and manufactured by the exhibiters; a board containing fittings for stable and saddle room, invented by the exhibiters, prices various.

E. PAGE and Co., of Bedford.

A six horse power high pressure fixed steam engine, price 145*l*, invented, improved, and manufactured by the exhibiters; a patent improved lever horse rake, price 7*l*. 10s., invented by William Williams, of Bedford, improved and manufactured by the exhibiters (prizes were awarded to this implement at the meeting of the Royal Agricultural Society of England held at Southampton in 1844, at Norwich 1846, and at Dublin in 1851; was also highly commended at Carlisle in 1855, and at Salisbury in 1857); a set of patent four beam diagonal iron harrows, price 2*l*. 5s. and upwards, invented by Samuel Taylor, of Cotton End, and manufactured by the exhibiters (obtained the prize at Derby in 1843, at Southampton in 1844, at Shrewsbury in 1845, at Northampton in 1847, at Norwich in 1849, and at Exeter in 1850; the prize medal was also awarded at the Great Exhibition in 1851; they obtained the prize at Lewes in 1852, at Gloucester in 1853, and at Chelmsford in 1856); a four-wheel wrought iron lever scuffler, price 6*l*, another size 7*l*., invented by William Williams, of Bedford, and manufactured by the exhibiters; a small two knife chaff engine, price 2*l*. 15s, other sizes from 4*l*. 10s. to 10*l*. 10s.; a three knife chaff engine, price 13*l*. 13s.; a set of improved whippletrees, price 11s. 6d.; and a set of improved equalizing whippletrees, price 1*l*. 6s., manufactured by the exhibiters; three sizes of a draining tile machine, price 13*l*. 13s., 17*l*. 17s., and 20*l*., invented by William Williams, of Bedford, and manufactured by the exhibiters (received a prize of 25*l*. at the Royal Agricultural Society's meeting at Northampton in 1847); a combined horse hoe, scarifier, and bouting plough, price 3*l*. 10s., with moulding plough 1*l*. extra; a double breasted bouting or ridging plough, price 3*l*. 15s., fitted up as a swing plough 3*l*, 5s., with one wheel 3*l*. 10s., with marker to regulate the width of ridge 7s. 6d. extra, with a set of hoes 10s. extra; two wrought iron ploughs, price 3*l*. 10s. and 3*l*. 15s., if with steel breast 9s. extra; an improved horse hoe, price with two wheels 2*l*. 10s., with one wheel 2*l*.; a sample of draining pipe and tile machine dies, price from 6s. 6d. to 15s. each; a die and stage for making bricks, and ditto for making pantiles, price 4*l*. 4s., manufactured by the exhibiters.

ROBT. WARDELL, of Aldbrough, Stanwick, near Darlington, Yorkshire.

(New implement) a self-acting side delivery reaping machine, to deliver either in swathe or sheaf, price 42*l*., invented and manufactured by the exhibiter.

HENRY BRUCKSHAW, of Hinstock, near Market Drayton, Shropshire.

(New implement) a cheese press, price £4; and (new implement) a caving riddle, price £2 2s., invented and manufactured by the exhibiter.

JAMES and FREDERICK HOWARD, of Bedford.

A set of Smith's patent apparatus for cultivating land by steam power, price £430; and a Smith's patent steam cultivator, price £16, another size £18; and a Smith's patent steam subsoil plough, price £4, invented by William Smith, of Woolston, and manufactured for and by the exhibiters; a Howard's patent ridging plough, price £5; (new implement) a patent chaff sifter or screen, price £10; a patent iron dwarf plough, price £2 5s, another size £3 3s.; a patent ridge or double breast plough, price £3 17s. 6d.; a patent iron one wheel plough, price £3 17s. 6d.; a patent iron swing plough, price £3 17s. 6d.; a patent iron plough, price £4 7s. 6d.; a patent ridge or double breast plough, price £4 7s. 6d., with marker 7s. 6d. extra, with hoes 10s. extra (the only prize ever offered by the Royal Agricultural Society for ridging ploughs was awarded to J. and F. Howard at Chelmsford, 1856); a patent iron plough, price £4 12s. 6d. (received the first prize for general purposes, and the first prize for light land, at the Royal Agricultural Society's meeting at Chelmsford in 1856, which, with the first prize for deep ploughing at the same meeting, and ten first premiums previously awarded, make thirteen first prizes awarded by the Royal Agricultural Society to the exhibiters for the best plough); a patent subsoil plough, price £3 12s. 6d.; a wrought iron colonial swing plough, price £4 12s. 6d.; a wrought iron colonial plough, price £5 2s. 6d.; a patent iron plough, price £6; a patent double furrow plough, price with steel breasts complete £6 6s., another size £7 7s.; a Howard's patent plough-wheel-moulding machine, price £40; an improved dynamometer or draught gauge, price £3 10s.; an iron plough sledge, price 8s.; a set of improved trussed whippletrees, price 11s. 6d.; and a set of improved three-horse equalizing iron tubular whippletrees, price £1 6s., all invented and manufactured by the exhibiters; a set of four-horse iron tubular whippletrees, price £2 10s., invented by the Marquis of Tweeddale, improved and manufactured by the exhibiters; a set of four-horse iron tubular whippletrees, price £2 10s.; three sizes of an improved Bedfordshire scarifier, price £5, £7 10s., and £9 10s.; three sizes of an improved horse hoe, price £2 5s., £3, and £3 5s. (the first prize was awarded to this implement at the Royal Agricultural Society's meetings at Lewes and Gloucester); three sizes of a set of patent four-beam harrows, price £2 10s., £3, and £3 6s. (J. and F. Howard have obtained nine first prizes from the Royal Agricultural Society for the best harrows, including the first prize for the best light harrows, and the first prize for the best general purpose harrows at the Chelmsford meeting); three sizes of a set of patent jointed harrows, price £3 16s., £4, and £4 10s. (these obtained the first prize as the best harrows for light land at the Royal Agricultural Society's meetings at Lewes, Gloucester, and Chelmsford); a set of patent two-beam harrows, price 5*l.*; a set of patent three beam harrows, price 4*l.* 4s.; a set of patent four-beam harrows, price 5*l.* 5s.; a set of patent drag harrows, price 5*l.*, another size 6*l.* 10s.; a patent horse rake (marked A), price 7*l.* 10s.; a patent horse rake (marked B), price 8*l.* 10s. (the two first prizes last offered by the Royal Agricultural Society were awarded to this implement); a patent horse rake (marked C.), price 10*l.* 10s.; and an improved drill presser, price 16*l.* (awarded the silver medal by the Royal Agricultural Society at the Salisbury meeting, 1357), all invented and manufactured by the exhibiters.

PROCTOR and RYLAND, of Saltney, near Chester; Cathay, Bristol; and Great Lister-street, Birmingham.

Manures for turnip and mangold, wheat, barley, and oats, price 8*l.* per ton; for grass, price 7*l.* 10s. per ton; for mowing land, price 8*l.* 10s. per ton; for grass land, with a light subsoil, price 8*l.* 10s.; for potatoes, price 8*l.* per ton; and superphosphate of lime, price 7*l.* 10s. per ton, all manufactured by the exhibiters.

WILLIAM HENRY NASH, of Isle of Dogs, Poplar, near London.

A portable steam engine, of eight-horse power, nominal, price 220*l* ; and a fixed steam engine, of eight-horse power, nominal, price 200*l.*, manufactured by the exhibiters.

WILLIAM NEWZAM NICHOLSON, of Newark-upon-Trent, Nottinghamshire.

A two-and-a-half horse power portable steam engine on four wheels, price 65*l.*; a corn winnowing, roughing, and blowing machine, price 12*l.* 12s.; and a winnowing or corn-dressing machine, price 9*l.*, another size 10*l.*, invented, improved, and manufactured by the exhibiter; (new implement), a winnowing or blowing machine, price 13*l.* 13s.; and three sizes of (new implement) a patent rotary corn screen and riddle, price 5*l.* 10s., 8*l.* 8s., and 10*l.* 10s., invented by John Palmer, of Stockton-on-Tees, improved and manufactured by the exhibiter; a corn grinding mill, driven by two-and-a-half-horse steam power, price 30*l.*, a machine for breaking oil-cake for beasts and sheep (obtained prizes of 5*l.* at Norwich, 3*l.* at Gloucester, 5*l.* at Exeter, a prize medal at the Great Exhibition, and high commendation at Lincoln), price 3*l.* 3s. and upwards to 9*l.* 9s., and (new implement) a machine for breaking oil-cake for beasts and sheep, price 3*l.* 10s. and upwards, invented, improved, and manufactured by the exhibiter; a Cambridge land roller, fitted with patent tubular iron shafts, price 13*l.* 10s., invented by W. Cambridge, of Bristol, improved and manufactured by the exhibiter; a patent haymaking machine for one horse (obtained the first prize at the Salisbury show last year), price 15*l.*, another size 16*l.* 16s., a patent haymaking machine for two horses, price 21*l.*, and a horse rake, price 7*l.*, invented, improved, and manufactured by the exhibiter; a set of steaming pans, attached to portable two-and-a-half-horse-power engine, price, with fittings, 2*l.* 10s., manufactured by the exhibiter; chaff-cutter, to be driven also by the small engine, price 15*l.* 15s., invented, improved, and manufactured by Richmond and Chandler, of Salford; a circular-saw table, suitable for the small engine, price 10*l.*, manufactured by the exhibiter; a washing machine, price 5*l.* 5s.; a manger, price, plain, 16s, enamelled, 8s. extra; a corner manger, price, plain, 16s., enamelled, 8s. extra; a set of stable stall fittings, price 3*l.* 10s.; a cottage cooking grate (obtained a prize of 5*l.* at York, 5*l.* at Exeter, and silver medal at Lincoln), price, 36 inches wide, 1*l.* 18s. 6d., larger sizes, 2*l.* 10s.; a superior large cooking range, for farm and other kitchens, price 13*l.*; a cooking grate, adapted for a small farm kitchen or bailiff's cottage, price, for 4 ft. opening, with boiler cock, 4*l.* 10s.; a cottage bedroom grate, price 1*l.* 2s.; a cottage pump and sink, price 2*l.*; and (new article) a length of W. N. Nicholson's improved continuous park fencing, of wrought tubular iron, price, per yard, 5s., invented, improved, and manufactured by the exhibiter.

RICHMOND and CO., of 62, South John-street, Liverpool, Lancashire.

Several sizes of chaff-cutting machines, price 3*l.* 15s. and upwards; a newly-invented litter-cutting machine, price 7*l.*; and a power chaff-cutting machine, price 15*l.* 12s., invented, improved, and manufactured by the exhibiters; a new patent bone-mill of four-horse power, price 80*l.*, invented, improved, and manufactured by Messrs. Rankin, of Liverpool; and a new patent double-action smut machine and corn screen (medium size), price, small, 25*l.*, medium 30*l.*, and large 40*l.*, invented by Mr. Grimes, of the United States, America, improved by John Rankin, of Liverpool, and manufactured by Messrs. Rankin, of Liverpool.

RICHARD and JOHN BOYALL, of Grantham, Lincolnshire.

A very light cabriolet phaeton, price 95 guineas; the Grantham sociable, price 65*l.*; and a sporting wagonette, price 65*l.* 10s., invented, improved, and manufactured by the exhibiters.

JOHN CARTWRIGHT, of Shrewsbury ,Salop.

A patent Gardner's turnip-cutter for sheep and lambs, price 4*l.* 13s. 6d., a patent Gardner's turnip-cutter with double action, price 5*l.* 13s. 6d., a patent Gardner's turnip-cutter (14-knife) for cattle, price 4*l.* 10s., and a patent Gardner's turnip cutter, on patent iron frame on wheels and handles, price 5*l.* 14s. 6d., invented by the late James Gardner, of Banbury, and manufactured by Bernhard Samuelson, of Banbury; a lever turnip-slicer, price 1*l.* 15s., invented by Bernhard Samuelson, of Banbury; a turnip grater, price 4*l.* 10s., invented by Edmund Moody, late of Maiden Bradley, improved and manufactured by Bernhard Samuelson, of Banbury; a patent root grater, price 3*l.* 10s., boxed in 4*l.* 5s., invented by Bushe and Barter, of Lismore, Ireland, improved and manufactured by Bernhard Samuelson, of Banbury; a roller mill for crushing all descriptions of grain and for splitting beans, price 5*l.* 15s., another size 7*l.* 10s.; an oilcake breaker, price 3*l.* 15s.; and a galvanized sheet iron barrel pump, price 2*l.* 5s., improved and manufactured by Bernhard Samuelson, of Banbury; a hand manure distributor, price 4*l.*, invented by Thomas Huckvale, of Choice Hill, improved and manufactured by Bernhard Samuelson, of Banbury; several sizes of a patent self-relieving chain harrow, price 3*l.* 7s. 6d. and upwards; and a combined winnowing or corn-dressing machine, also a first-rate blower, price 6*l.* 15s. and upwards, invented, improved, and manufactured by the exhibiter; several sizes of a patent press wheel roller or clod-crusher, price 7*l.* 15s. and upwards to 16*l.*, invented by W. C. Cambridge, of Bristol, and manufactured by the exhibiter; an improved 1 or 2-horse gear work, price 10*l.* 10s.; a patent intermediate motion, price 5*l.* 5s.; a 2-horse power barn work for thrashing machine, price 9*l.* 9s.; and a 4-horse power portable thrashing machine, price 37*l.*, invented, improved, and manufactured by the exhibiter; a patent combined root-grater and chaff-cutter, price 9*l.*, invented, improved, and manufactured by Bernhard Samuelson, of Banbury; a patent prize root pulper, price 6*l.* 6s., another size 8*l.* 8s., pulley for power, 12s. 6d. extra, invented, improved, and manufactured by E. H. Bentall, of Heybridge; a patent compound action mill, price 14*l.*, another size, 20*l*, invented, improved, and manufactured by

John Patterson and Co., of Beverley; a patent chaff-cutter for power, price 10*l.* 10s., invented, improved, and manufactured by Pinckseley and Sims, of Legh; an improved chaff-cutter, with 3 knives, price 9*l.* 10s., invented, improved, and manufactured by the exhibiter; a strong roller kibbling mill for power, price 9*l.* 10s., manufactured by the exhibiter; a patent wheat mill and dressing machine or domestic corn mill, price 6*l.* 10s., invented, improved, and manufactured by Messrs. Lloyd and Son, London; an improved barrel churn for power, 50 gallons, price 4*l.* 7s. 6d., invented, improved, and manufactured by Robinson and Son, of Coventry; a patent paring plough, price 6*l.* 6s., invented, improved, and manufactured by William Woof, of Weston Birt; an improved lever corn drill with 13 spouts, price 29*l.*; and a compound lever cheese press, price 3*l.* 3s. and upwards, invented, improved, and manufactured by the exhibiter; an improved 2-row ridge drill for turnips and mang l wurzel, price 5*l.*, manufactured by the exhibiter; an improved barrel churn, price 2*l.* 14s. and upwards, invented, improved, and manufactured by Robinson and Son, Coventry; a patent iron plough, price 4*l.* 7s. 6d., another size 4*l.* 12s. 6d.; a patent iron swing plough, price 3*l.* 17s., and a patent horse rake fitted with steel teeth, price 8*l.* 10s., improved and manufactured by J. and F. Howard, of Bedford; and a set of improved truss whippletrees, price 11s. 6d., manufactured by J. and F. Howard, of Bedford; several troughs for pigs, sheep, cattle, dogs, &c., at various prices from 3s. to 16s.; a stack pillar and cap, price 5s.; a patent prize root-pulper, price 5*l.* 5s.; an improved prize oilcake mill, price 3*l.* 13s. 6d.; and an improved oilcake mill, price 2*l.* 2s., invented, improved, and manufactured by E. H. Bentall, of Heybridge; an improved 1-horse cart, price 12*l.* and 14*l.*, with harvest shelvings, 1*l.* 12s. extra, and an improved pair-horse waggon, price 29*l.* 10s., invented, improved, and manufactured by William Crosskill, of Beverley; and a double roller cake breaker on wood frame, price 4*l.* 15s., invented, improved, and manufactured by the exhibiter.

Cottam and Cottam, of St. Pancras Iron Works, Old St. Pancas Road, London.

A full-sized model of a stall, fitted up to show the patent manger, price £4 7s. 6d., invented by Professor Varnel, of the Royal Vetirinary College, and manufactured by the exhibiters (received the commendation of the Royal Agricultural Society of England at Salisbury, 1857, and the silver medal of the Royal Agricultural Society of Ireland at Waterford,,1857); an iron manger, rack, and water trough combined, price £2 12s. 6d., invented and manufactured by the exhibiters; a stall division, price £2 10s., invented by the exhibiters; an enamelled manger and rack combined, price £3, manufactured by the exhibiters; a stall division, price £1 5s. 6d., invented and manufactured by the exhibiters; (new article) an iron manger rack and water trough, price £3 12s. 6d., manufactured by the exhibiters; a set of white enamelled iron plates, for the heads of stalls, price 3s. 6d. per foot; a set of tinted enamelled iron plates, price 3s. 6d. per foot; a stall division, price £1 17s. 6d., and a patent enamelled manger rack and water trough, price £3 15s., manufactured by the exhibiters; (new article) a patent pivot manger, price £1 6s. 6d., invented and manufactured by the exhibiters; a length of patent moveable cover gutter for stalls, price 2s. 6d. per foot; an angle piece of patent moveable cover gutter, price 3s. 6d. per foot; lengths of patent moveable cover for loose boxes, price 2s. 6d. per foot; a horse pot to receive stable drainage, and trapped to prevent smell, price 7s.; (new articles) a set of patent harness brackets, comprising collar brackets, price 2s. 6d., pad bracket 2s. 6d., bridle holder 2s. 6d., harness holder 2s. 6d.; and a board of harness room fittings, manufactured by the exhibiters; (new articles) a set of patent harness brackets, price 29s. and 41s. 6d., covered with gutta percha, invented and manufactured by the exhibiters; an improved patent suspending rod for cleaning harness, &c., price 21s., manufactured by the exhibiters; (new articles) head plates and bolts, price 4s. 6d.; (new articles) a model of stalls and boxes, invented and manufactured by the exhibiters; a stand of chains, various prices; an improved pattern rack chain, price 5s.; an improved pipe pillar rein, price 6s.; an improved stable lantern price 3s.; a registered safety lantern for stables, &c., price 15s.; an improved pattern stable fork, price 3s. 6d.; an improved pattern dung fork, price 5s. 3d.; a strong sack truck, price 18s.; and a strong iron sack truck, price 14s., manufactured by the exhibiters; an improved carriage setter, price 18s., invented and manufactured by the exhibiters; an iron carriage setter, price 25s.; an enamelled wash stand and top, price 21s.; a harness room stove, price 15s., another size 25s.; an iron corn bin, price 30s. and upwards to 60s.; an improved corn conductor and meter, price 7s. 6d; an improved stable bucket, price 6s, and an improved stable pump, price 4 in. 60s, 3½ in. 45s., 3 in. 38s., manufactured by the exhibiters; asanitary horse pot, price 6s.; another size 8s. 6d., invented by the Sanitry Commissioners, and manufactured by the exhibiters; an improved cast iron stink trap, price, 10 in., 10s., 12 in. 20s.; a sample of stable grates and frames, price 8 in. 1s. 9d., 12 in. 4s. 3d., 18 in. 12s. 6d. each; a cast iron ventilator, price 1s. 6d.; circular ventilaors, 2s. 6d. to 7s. 6d. each; two oblong ventilators, price 3s. 6d. and 5s. 6d. each; an improved circular ventilator, price 21s.; a patent chaff cutting machine, price 90s.; a patent oat bruising machine, price 5*l.* 7s. 6d.; an odometer, orland measurer, price 70s.: a dynamometer, or draught gauge, price 7*l.*; a star plate and ring, price 2s. 6d.; a collection of ornamental name plates, price 2s. 6d.; two wrought iron corner hay racks, price 12s. 6d. and 16s. 6d.; two wrought iron straight hay rack, price 16s. 6d.; two wrought iron circular hay racks, price 9s. and 17s.; a cast iron corner hay rack, galvanized, price 26s.; an iron manger rack, and water trough, plain, price 60s.; an iron corner manger, plain, price 55s., small size less; an iron corner manger, enamelled, price 60s., small size less; patent collar bar sheep hurdles, price 4s. 6d. and upwards, invented and manufactvred by the exhibiters (received the silver medal of the Royal Agricultural Society of England at Salisbury, 1857, and the high commendation of the Royal Agricultural Society of Ireland at Waterford, 1857); a collection of patent collar bar cattle, ox, and deer hurdles, price 5s. 6d., 6s., and upwards; a collection of collar bar garden and field hurdles, prices 7s. 10d., 8s. 8d., and upwards; a collection of wrought iron "collar-barred" field gates, price 32s. (received the silver medal of the Royal Agricultural Society of England at Salisbury, 1857, and the high commendation of the Royal Agricultural Society of Ireland at Waterford, 1857), invented and manufactured by the exhibiters; a wrought iron flat-barred field gate, price 42s. and 56s. 6d.; a wrought iron field gate, price 58s. and upwards; a pair of wrought iron field gates, price 69s. 6d., another size 6*l.* 4s.; and a wrought iron fencing (continuous), price 10½d. per foot, manufactured by the exhibiters; (new implement) a wrought iron improved rational or foot gate, price 18s. 6d., improved by the exhibiter; a strained wire fencing, for cattle, price 1s. 8¼d. per yard; straining standards for wire fencing, price 25s. 6d. each; intermediate uprights for strained wire fencing, price 11d. each; a coil of best strained wire, containing 160 yards, price 10s. 6d.; a wrought iron tree guard, price 15s. 6d., another size 25s., and a pair of pole chains for a carriage, price 15s., manufactured by the exhibiters.

William Crowley and Sons, of Newport Pagnall, Buckinghamshire.

(New implement) a set of ploughs, price £40 to £50, and (new implement) a cultivator, price from £30 to £40, both to be worked by steam power, to compete for the £500 prize, and a general-purposes cart, price 16*l.*, all invented, improved, and manufactured by the exhibiters. The latter is the Great Exhibition prize cart.

Barnard and Bishop, of Norwich, Norfolk.

A patent root pulper, price £4 10s. and upwards, invented and manufactured by the exhibiters; a root grater or turnip cutter, price £4 10s., improved and manufactured by the exhibiters; a root grater, price £3 10s, invented by Bushe and Barter, of Lismore, Ireland, improved and manufactured by the exhibiters; an improved turnip slicer, price £4, invented and manufactured by the exhibiters; two Gardner's turnip cutters for sheep, price £4 10s. and £5, a ditto double action, price £5 10s., and a ditto for cattle, price £4 10s., all invented by James Gardner, of Banbury, improved and manufactured by the exhibiters; patent barley hummellers or avellers, price £4 10s. and £5 10s., invented by R. R. Holben, of Barton, Cambridge, improved and manufactured by the exhibiters; patent rotary corn screens and riddles for farmers' use, price £8 8s. and £13 13s., invented by John Palmer, of Stockton-on-Tees, improved and manufactured by the exhibiters; a wrought-iron hay rack or crib for cattle or horses, price £1 10s., improved and manufactured by the exhibiters; two registered poultry troughs and fountains, price 10s. each, another size 15s.; cast-iron troughs for poultry, price from 1s. 9d. upwards; troughs for dogs, price 2s. 6d. and 3s. 6d.; several specimens of strong wrought-iron garden chairs, price from 18s. 6d. to £2 2s.; a strong wrought-iron garden seat, price 12s. 6d.; a wrought-iron folding garden stool with elastic galvanized wire seat, price 4s. and upwards to £1 10s., and a patent washing machine, price £6 10s., all invented and manufactured by the exhibiters; a patent self-rolling mangle, price £7 7s., invented by Charles Barnard, of Norwich, and manufactured by the exhibiters; a cottage mangle, price £3 10s.; a table mangle, price £2 12s. 6d.; several rolls of galvanized and japanned wire netting of every size, price per lineal yard from 4½d. upwards; several single and double Norfolk pig troughs, circular and otherwise, price 7s. 6d. and upwards; and a cast-iron window frame and casement, price 14s., all invented and manufactured by the exhibiters.

William Brown and Charles N. May, of Devizes, Wilts.

An eight-horse power portable steam engine, price £230; an eight-horse power fixed steam engine, price £190; a combined thrashing machine to finish corn for market, price £93; a barley or corn screen, price £8; (new implement) a combined barley hummeller and screen, price £11; a barley hummeller, price £4 10s., and a one horse cart, price £12 10s, manufactured by the exhibiters—the latter was highly commended by the judges at the Royal Society's Meeting at Salisbury; a patent manure distributor, price £10, invented by Henry Blandford, of Sandridge, and manufactured by the exhibiters; (new implement) a patent twelve-inch sluice cock or valve, with brass face, price £6 6s., and (new implement) a patent four-inch sluice cock or valve, price £2, manufactured by the exhibiters.

William Busby, of Newton-le-Willows, Bedale, Yorkshire.

A one or two-horse cart, price £13, invented by William Lister, Esq., of Dunsa Bank, improved and manufactured by the exhibiter (received a prize of £10 at the Exeter meeting in 1850, a council medal of the Great Exhibition in 1851, a prize of £10 at Lewes in 1852, silver medal at Lincoln in 1854, and the Bath and West of England Society's prize for three years in succession, and a prize of £4 at Salisbury in 1857); an improved one or two-horse cart, price £16, invented by Mr. Scott, of Broom Close, Yorkshire, and improved and manufactured by the exhibiter (this cart received a prize at Salisbury in 1857); an improved Hannam's skeleton harvest cart, price £16 10s., invented by Hannam, of Burcot, Oxon, improved and manufactured by the exhibiter; a two-wheel plough for general purposes, price £4 10s., another size £4 7s. 6d., and £4 4s. (received the award of the Council medal at the Great Exhibition of 1851, a first class medal of the Paris Exhibition, and also six head prizes from the Royal Agricultural Society of England in eight years, also £10 at the Rotherham meeting of 1856); a two wheeled plough, price £5 5s. (received the prize at the Society's meeting at Northampton in 1847, £10 at York 1848, and £7 at Lewes 1852); a light two-horse plough with two wheels, price £3 17s. 6d.; a horse-hoe with three tines and revolving harrow, price £2 10s., smaller size £2 5s. (awarded prizes by the Royal Agricultural Society five years in succession, also prizes at the Bath and West of England Society at Taunton in 1852, at Plymouth 1853, at Bath 1854, at Taunton 1855, and at Salisbury in 1857); a horse hoe with expanding arrow, price £3 3s.; a five-tined horse hoe, price £3 3s., another size £2 17s. 6d., and a three-tined horse hoe, price £2, invented, improved, and manufactured by the exhibiter; a patent implement for topping and tailing turnips, price £6 15s., invented by William Lister, Esq., of Dunsa Bank, improved and manufactured by the exhibiter.

James Eastwood and Co., of Blackburn, Lancashire.

Several specimens of a churn, from 2 gallons to 30 gallons, price from 1*l*. 13s. to 5*l*. 19s. 6d., invented and manufactured by the exhibiters.

James Ferrabee and Co., of Phœnix Iron Works, Stroud, Gloucestershire.

A vertical direct action eight horse power fixed steam engine, price 265*l*.; ditto four horse power, price 125*l*.; ditto two horse power, price 80*l*., invented, improved, and manufactured by the exhibiters; a chaff cutting machine for horse, water, or steam power, price 15*l*. 15s., invented and manufactured by the exhibiters; a chaff cutting machine for manual or horse power, price 6*l*. 10s., invented by Richmond and Chandler, of Salford, and manufactured by the exhibiters; a one horse power for driving ditto or other machinery, price 7*l*.; a two horse power, price 14*l*.; and a portable corn grinding mill, for steam or water power, price 50*l*., invented and manufactured by the exhibiters; several sizes of a mowing machine, from 12 to 22 inches wide, price 4*l*. 5s. to 6*l*., invented by Edwin Budding, of Dursley, improved and manufactured by the exhibiters; three sizes of a patent mowing machine, price 26 inches wide 9*l*., 28 inches wide 12*l*., 36 inches wide 16*l*., invented and manufactured by the exhibiters; a case of screw wrenches, price from 5s. to 18s., invented by Edwin Budding, of Dursley, and manufactured by the exhibiters.

Fowler and M'Collin, of Kingston-upon-Hull, Yorkshire.

A portable steam engine of seven horse power, price 180*l*.; and a portable combined thrashing and finishing machine, price 105*l*., improved and manufactured by the exhibiters; and (new implement) a patent pantile machine, price 30*l*., improved by S. Spalding and the exhibiters, and manufactured by the exhibiters.

Richard Garrett and Sons, Leiston Works, Saxmundham, Suffolk.

(New implement) a twelve horse power self-propelling portable steam engine, price as a portable engine 340*l*., as a self-propelling engine 400*l*., invented, improved, and manufactured by the exhibiters; a seven horse power portable steam engine, price 220*l*.; a six horse power portable steam engine, price 205*l*.; and a fifteen horse power horizontal fixed engine, price 335*l*., improved and manufactured by the exhibiters; (new implement) a five horse power portable bolting, thrashing, and straw shaking machine, price 55*l*., invented, improved, and manufactured by the exhibiters; an improved horse gear for five horses, price 33*l*.; a portable combined thrashing, straw shaking, and screening machine, price 66*l*. (received prizes at Lewes, Lincoln, Carlisle, and in 1851, amounting to 20*l*. and three medals); and a combined thrashing, straw shaking, screening, and winnowing machine, price 90*l*. (received prizes at Lewes, Lincoln, Carlisle, and in 1851, amounting to 20*l*. and three medals), improved and manufactured by the exhibiters; a patent portable combined thrashing, straw shaking, screening, winnowing and dressing machine, price 115*l*. (received a special medal at Carlisle 1855); and a fixed combined thrashing, straw shaking, screening, winnowing and dressing machine, price 130*l*. (received a prize medal at Gloucester 1853, and at Carlisle 1855), invented, improved, and manufactured by the exhibiters; a one horse power portable open drum thrashing machine, price 32*l*.; and a two horse power bolting thrashing machine, price 47*l*., improved and manufactured by the exhibiters; an improved corn dressing machine, for preparing all kinds of grain for market, price 12*l*. 10s.; an improved dressing machine, expressly for preparing grain for market after it has been riddled and screened, price 8*l*. 5s., and an improved corn dressing machine, price 6*l*. 5s., invented, improved, and manufactured by the exhibiters; an improved chaff cutting machine, for horse or steam power, price 18*l*. 18s.; an improved ditto, for horse power, price 13*l*.; and a portable stone grinding mill, price 59*l*., improved and manufactured by the exhibiters; an oilcake breaker, for all varieties of cake, price 11*l*. (received the Society's prize three years in succession, in 1853, 1854, and 1855), invented, improved, and manufactured by the exhibiters; an oilcake breaker for common cake, price 4*l*. 5s., improved and manufactured by the exhibiters; a drill for general purposes, fitted with Chambers's patent apparatus for the delivery of the manure, price complete for eleven rows 42*l*. (received nine of the Society's prizes, amounting to 107*l*. and two medals); and an improved drill for seed and manure on the flat and ridge, with Chambers's patent apparatus for the delivery of the manure, price 23*l*. 15s. (prizes of 10*l*. at Cambridge 1840, 10*l*. at Northampton 1847, 10*l*. at

York 1848, 10*l.* at Gloucester 1853, 5*l.* at Carlisle 1855, and the Great Council Medal of 1851, were awarded for this drill), invented by T. Chambers, jun., of Colkirk Hall, improved and manufactured by the exhibiters; a three row economic seed and manure drill, price 12*l.* 12s. (prizes of 5*l.* at Lewes 1852, 5*l.* at Gloucester 1853, and 5*l.* at Lincoln 1856, were awarded for this drill), invented, improved, and manufactured by the exhibiters; an improved Suffolk prize lever corn and seed drill, price complete for eleven rows 25*l.*, for nine rows 22*l.* (the prize of 10*l.* was awarded this drill at Norwich 1849), improved and manufactured by the exhibiters; an improved corn and seed drill for small occupations, price complete for nine rows 17*l.*, for seven rows 15*l.* (prizes of 10*l.* at Exeter 1850, 5*l.* at Lewes 1852, and 2*l.* at Salisbury 1857, were awarded for this drill), invented, improved, and manufactured by the exhibiters; a patent combined seed and liquid manure drop drill, price complete for two rows 29*l.* 10s. (the prize of 5*l.* at Chelmsford 1856, and 5*l.* at Salisbury 1857, were awarded for this drill), invented by Mr. Spooner, of Eling, and Mr. T. Chambers, jun., of Colkirk Hall, improved and manufactured by the exhibiters; a patent combined seed and liquid manure drop drill, price complete for two rows 22*l.*, invented by Mr. Chandler, of Aldbourne, and Mr. T. Chambers, jun., of Colkirk Hall, improved and manufactured by the exhibiters; a Chambers's patent drop lever, price 2*l.* 7s. 6d.; and a Chambers's patent broadcast manure distributor, price 18*l.* (prizes were awarded for this distributor at Lincoln in 1854, Carlisle in 1855, and at Salisbury in 1857), invented by Mr. T. Chambers, jun., of Colkirk Hall, improved and manufactured by the exhibiters; a patent prize horse hoe, price to suit the eleven-row drills 18*l.* (received every prize offered by the Society, fourteen in all, viz., five medals and 65*l.* in money), invented, improved, and manufactured by the exhibiters; a broadcast seed sowing engine, price 4*l.* 10s., improved and manufactured by the exhibiters; (new implement) a patent lever horse hoe, price 12*l*, invented by John Taylor, of Swanton Novers, Norfolk, improved and manufactured by the exhibiters; an improved fore-carriage steerage, price 4*l.* 10s., improved and manufactured by the exhibiters; (new implement) a patent combined turnip hoe and thinner, price 8*l.* 8s, invented by John Horton, of Ashburton, improved and manufactured by the exhibiters; an improved reaping machine, with new self-acting delivery, price 45*l.*, improved and manufactured by the exhibiters; the American patent eagle mowing machine, price 35*l.* (received the prize of 200*l.* at Massachusetts 1856, and of silver plate at Indiana 1856, competed for the prize of the Royal Agricultural Society of England at Salisbury 1857, which was awarded for it), invented by J. H. Caryl, of Sandusky, Ohio, manufactured by Nurse, Mason, and Co., of Boston, U.S.; model of a patent prize horse hoe, price 5*l.*, invented, improved, and manufactured by the exhibiters.

WILLIAM HARKES, of Jostock Gralam, Knutsford, Cheshire.

A one horse reaping machine, price 18*l.*; and a cheese press, price 4*l.* 10s., invented and manufactured by the exhibiter; a cultivator, price 7*l.*, invented, improved, and manufactured by the exhibiter; (new implement) a four horse grubber, price 14*l.* 10s., invented and manufactured by the exhibiter; a swing plough for two horses, price 4*l.* 4s.; a two horse wheel or swing plough, price 4*l.* 5s.; a light one horse plough, price 3*l.* 15s.; and a plough for export, price 4*l.* 4s., manufactured by the exhibiter; (new implement) a drill plough, price 4*l.* 10s.; and a drill or horse hoe, price 3*l.* 15s., invented and manufactured by the exhibiter; a drill plough, price 3*l.* 5s., manufactured by the exhibiter; a scarifier, price 3*l.* 15s., invented and manufactured by the exhibiter; a pair of drill harrows, price 1*l.* 10s., improved and manufactured by the exhibiter; a set of angle harrows, price 4*l.*; and a subsoil plough, price 4*l.* 10s., manufactured by the exhibiter.

SAMUEL HARRIS, of Hills-lane, near Shrewsbury, Shropshire.

(New implement) a double iron plough with cast socks, price £6 10s., another size £3 5s.; (new implement) a double-row drill, price £4 10s., and a double-row drill, price £4 5s., invented and manufactured by the exhibiter; a Cambridge's roller, or clod crusher, price £8 10s., another size £9 10s., improved and manufactured by the exhibiter; a Patterson's patent clod crusher, price £10, invented by John Patterson of Beverley, and manufactured by the exhibiter; a set of four-horse iron harrows, price £3 10s.; a set of three-horse harrows, price £3 5s.; a set of two-horse harrows, price £3; a set of chain harrows, price £2 15s.; (new implement) a nine-tine cultivator, price £5 5s.; (new implement) a set of twin harrows, price £6; a horse-rake, price £4 10s., and a single action hay-making machine, price £8 10s., invented and manufactured by the exhibiter.

HART, GIBBONS, AND GIBBONS, of Wantage, Berkshire.

A patent portable combined thrashing machine, price £112, invented by Charles Hart of Wantage, improved and manufactured by the exhibiters (received the prize £20, at the Royal Agricultural Society's Show held at Gloucester, 1853, also a £20 prize at the Yorkshire meeting in the same year, and the judge's special commendation at Newton Abbotts 1857); a 3½-horse power portable steam engine, price £120, invented and manufactured by William Butlin of Northampton; (new implement) a portable combined thrashing machine, price £60, invented and manufactured by the exkibiters; an improved liquid manure or water cart, price £14 14s., invented by C. Hart of Wantage, and manufactured by the exhibiters (received the first prize at the Royal Irish Agricultural Society's Show, held at Waterford 1857), and a screw jack, price £1 10s., manufactured by the exhibiters.

GEORGE HOWE, of Farningham, near Dartford, Kent.

(New implement) a ten-horse power tubular boiler for fixed steam engines, price £120, and a strong wrought iron chimney, suitable for the foregoing boiler, price £6, invented, improved, and manufactured by the exhibiter; a Dray and Co.'s patent reaping machine, price £25, invented by Obed Hussey of America, improved by W. Dray and Co. of London, manufactured by the exhibiter; an improved registered corn dressing or winnowing machine, price £11 11s.; a registered chaff cutter, price 58s., and an improved chaff cutter, price 77s. 6d., invented by W. Dray of London, improved and manufactured by the exhibiter.

THOMAS R. AND R. HUNT, of Earl's Colne, near Halsted, Essex.

A corn dressing machine, price £8 8s., and a horse or steam power chaff cutting machine, price £12 12s., invented, improved, and manufactured by the exhibiter; a one-horse or hand-power chaff cutter, price £7 7s., invented by Cornes of Barbridge, improved and manufactured by the exhibiter; a corn grinding mill, price £50, invented, improved, and manufactured by the exhibiters; an improved machine for hulling clover and trefoil seed, price £45, invented by Constable of Cambridge, improved and manufactured by the exhibiters (received the prize of £2 at the Bath and West of England Show, 1855, and the Society's silver medal at Carlisle the same year); a one-horse gear, price £10 10s.; a two-horse gear, price £14 14s.; a hand-power chaff cutter, price 52s. 6d.; a one-row hand cup drill, price 50s.; a one-row turnip and manure drill, price £5 13s. 6d.; an iron expanding horse hoe, price 40s.; a bundle of Essex improved scythes (12 in number), price 11s. 6d., and a bundle of Essex scythes (12 in number), price 11s. 6d., invented, improved, and manufactured by the exhibiters.

THOMAS LYNE, of Malmsbury, Wilts.

(New implement) a patent field stile, price 40s., invented and manufactured by the exhibiter; (new implement) a set of patent harrows, price whippletree included £5; a set of patent seed harrows, price with whippletree 80s., and (new implement) a set of patent drag harrows, price with whippletree £6 10s., invented by the exhibiters, manufactured by John Sealy of Corston, Malmsbury.

JAMES MELLARD, of Trent Foundry, Rugeley, Staffordshire.

Several sizes of a two-knife economic chaff cutter, on neat cast iron frame, price 42s. and upwards, invented, improved, and manufactured by the exhibiter; an improved Cornes' chaff cutting machine No. 4, price £10 10s., invented by James Cornes of Barbridge, improved and manufactured by the exhibiter; a strong corn crusher, price £9 10s., invented by Richmond and Chandler of Salford, and manufactured by the exhibiter, a smaller size (new implement), price 95s.; a cake breaker, price 55s., manufactured by the exhibiter; a cake breaking machine, price 90s., invented by Mr. Nicholson of Newark, improved and manufactured by the exhibiter; a Gardner's double action turnip cutter, price £5, invented by the late James Gardner of Banbury, and manufactured by the exhibiter; a cheese press, price 33s., and compound lever cheese presses of various sizes, price 55s., invented, improved, and manufactured by the exhibiter (received repeated prizes from the Staffordshire Agricultural Society); a curd mill, price 30s., improved and manufactured by the exhibiter; a cast cockle, or heat box, price 12s., invented and manufactured by the exhibiter; a five-tined lever horse hoe, price 45s., manufactured by the exhibiter; (new implement) a three-tined root grubber, price 47s. 6d., invented and manufactured by the exhibiter; a general purpose plough, price 76s, and a ridge or double-breast plough, price 60s., manufactured by the exhibiter; a parallel lever subsoil plough, price £5 10s., invented by Gray and Son of Uddingston, and manufactured by the exhibiter: a five-tined cultivator, grubber, and paring plough, price 90s., improved and manufactured by the exhibiter; a seven-tined ditto, price £6 10s.; a chain harrow, price 60s., manufactured by the exhibiter; a patent self-relieving chain harrow, price 80s., invented by Mr. Cartwright of Shrewsbury, and manufactured by the exhibiter; a two-furrow presser, with drilling apparatus, price £8 10s., invented by J. Bright, Esq., of Teddesly, Staffordshire, improved and manufactured by the exhibiter; a two-furrow turnip and mangold drill, price £5 10s., invented and manufactured by the exhibiter; a sheep rack, price 63s., improved and manufactured by the exhibiter; an assortment of poultry troughs, price 9d. to 6s. 6d., invented by Barnard and Bishop of Norwich, and manufactured by the exhibiter; an assortment of pig troughs, price 15s. and lower, manufactured by the exhibiter; two ornamental garden chairs, price 28s. and 35s., designed by the Coalbrookdale Company, and manufactured by the exhibiter; an ornamental flower-pot stand, price 15s., designed and manufactured by the exhibiter; two liquid manure taps, price 3s. 6d. and 4s. 6d., and an improved carriage jack, price 8s. 6d., invented and manufactured by the exhibiter; a roller malt mill, price £5 15s., and a Tennant's grubber, on wheels, price 95s., manufactured by the exhibiter; an improved patent press wheel roller and clod crusher, price £16, invented by Mr. Cambridge of Bristol, and manufactured by the exhibiter.

William Henry Peake, of 44, Wood-street, Liverpool, Lancashire.

Several sizes and specimens of wrought iron hurdles, price 3s. and upwards, manufactured by the exhibiter; two wrought iron full-braced gates, price 35s. and upwards, invented and manufactured by the exhibiter; three wrought iron flat-barred field gates, price 21s. and upwards, and two wrought iron round-barred field gates, price 30s. and upwards, improved and manufactured by the exhibiter; two wrought-iron taper-barred gates, price 52s., manufactured by the exhibiter; a length of wrought iron running fence, 4ft. high, price 4s. per lineal yard, improved and manufactured by the exhibiter; a sample of iron portable hurdles, price 5s., invented by R. C. Lowndes, Esq., of West Derby, and manufactured by the exhibiter; a wrought iron hurdle, 6ft. long and 4ft. high, price 9s. 4d., and a wrought iron vertical-barred espalier trainer, price 7s. 6d., invented and manufactured by the exhibiter; a pair of wrought iron Gothic-pattern entrance gates, price 6*l.*, and a pair of wrought iron gates, price 5*l.* 10s., manufactured by the exhibiter; three wrought iron wicket gates, price 20s. and upwards; a wire-training arch, price 63s.; an ornamental pot stand, of wire-work, price 32s., and wrought iron straight and concave garden seats, price 28s. and upwards, manufactured by the exhibiter; a wrought iron self-shutting gate, price 30s. and upwards; a sample of poultry fencing, 6ft. high, price 8s. 6d. per yard; a wrought iron circular hay-rack, price 7s. 6d., corner do. 6s. 6d.; a wrought iron wheelbarrow with wrought iron wheel, price 30s., and samples of wrought iron stakes for supporting plants, price per dozen, 2ft. long 2s. and upwards, manufactured by the exhibiter.

Robert and John Reeves, of Bratton, near Westbury, Wilts.

A patent four-row drill for liquid and seed, 6ft. wide, price 28*l.* 10s. (the Royal Agricultural Society of England awarded a silver medal to this drill at York 1848, a prize at Norwich 1849, a prize at Exeter 1850, a special prize at Gloucester 1853, a prize at Lincoln 1854, and at Carlisle 1855), and (new implement) a patent three-row do., price 34*l.* 5s., invented by Thos. Chandler, of Aldbourne, improved and manufactured by the exhibiters; a patent two or three-row drill for liquid and seed, 4½ft. wide, price 31*l.* 15s.; a patent economical drill for dry manure and seed, 6ft. wide, price 12*l.* (a silver medal was awarded to this machine at Salisbury 1857); a patent combined drill for three rows of dry manure and seed, or seven rows of corn without manure, price 18*l.*; a two or three-row patent economical drill for dry manure and seeds, 4½ft. wide, price 10*l.*; a patent dry manure distributor, price 10*l.* (a prize was awarded to this machine by the Royal Agricultural Society of England at Salisbury 1857), and a patent hand drill for corn or seeds, price 70s., invented, improved, and manufactured by the exhibiters; a patent rotary corn screen or riddle, invented by John Palmer, of Stockton-on-Tees, improved and manufactured by the exhibiters, price 9*l.* 10s., and a patent cheese-making apparatus, price 22*l.*, invented, improved, and manufactured by Edward Cockey and Sons, of Frome Selwood.

William Smith, of Kettering, near Northampton.

An improved double-blast winnowing machine, price 13*l.* 13s. (a prize of 5*l.* was awarded to this machine at the Yorkshire Agricultural Society's Meeting, and also three prizes at other meetings), another size 11*l.* 11s., and a new patent steerage horse hoe, price 7*l.* 10s., with lever 20s. extra (a prize of 40s. was awarded to this implement at Salisbury 1857, and a special prize at York 1857, commended by the judges at Carlisle in 1855, and received a first-class medal at Paris in 1855 and 100 fr. in 1856, and also a prize of 6*l.* at Athlone in 1856); smaller sizes 7*l.* and 6*l.* 10s., invented, improved, and manufactured by the exhibiter.

George Taylor, of Bury, Lancashire.

A combined portable machine, price 52*l.* 10s., invented by the exhibiter.

Thomas Standing, of Lime-street, Fishergate, Preston, Lancashire.

Several rolls of strong double-selvage small diamond mesh hare and rabbit-proof wire-netting, price per lineal yard 4½d. and upwards; several rolls of strong double-selvage galvanized wire sheep and deer fencing, price per lineal yard 10½d. and upwards; a roll of extra-strong double-selvage galvanized house, garden-wall, flower, fruit, and vine-training fencing, price per lineal yard 1s. 4½d.; several other rolls of strong extra-small diamond mesh double-selvage galvanized wire-netting, price per lineal yard 8½d. and upwards, all invented, improved, and manufactured by the exhibiter; an improved portable Victoria garden-chair, price 13s., and (new implement) four sizes of a sun and planet motion churn, to churn 16 gallons, price 22s. and upwards, made all sizes from 2 to 100 gallons, invented, improved, and manufactured by the exhibiter.

Thomas Stapleton, of Dock Office Row, Hull, Yorkshire.

A portable or travelling corn grinding mill, price 70*l.*; a portable corn grinding mill (obtained a prize of 20s. at the Lincolnshire Agricultural Show, held at Louth 1857), price 34*l.*, and a corn mill, price 135*l.*, invented, improved, and manufactured by John Tye, of Lincoln; several sizes and descriptions of French burr mill (bed) stones, price 7*l.* 10s. and upwards; several sizes and descriptions of French burr mill (runner) stones, price 8*l.* 10s. and upwards; a Derbyshire Peak mill stone, price 3*l.* 10s.; a Derbyshire Peak mill (bed) stone, price 4*l.* 10s.; a Derbyshire Peak mill (runner) stone, price 5*l.*; a parcel of iron proving staffs, price 2*l.* 10s., a parcel of cast-steel mill chisels, price 1s. per lb.; a chisel haft, price 6s. 6d., another size 10s. 6d., and a pair of iron blocks, price 45s., all improved and manufactured by the exhibiter.

Henry Atwood Thompson, of Lewes, Sussex.

(New implement) a patent hay-making machine, with reverse action, price £16 16s. (awarded the first prize at Paris in 1856, and a prize at the Royal Agricultural Society's show at Salisbury in 1857); (new implement) a horse drag rake, for hay, corn, and stubble, price £8; (new implement) a prize combined one-horse cart, water cart, and manure irrigator, price, complete, £17 10s. (awarded a gold medal and 250 francs at Paris in 1856, and highly commended at Salisbury in 1857); an economic drainage level, price 38s. (awarded a silver medal at Lincoln 1854, and a gold medal and 100 francs at Paris in 1856); an improved economic drainage level, price 55s.; a prize telescope drainage level, price £5 10s. (awarded a silver medal at Gloucester in 1853, and a gold medal at Paris in 1856); a workmen's bevel for laying drain pipes, price 18s. 6d. (commended at Salisbury in 1857), and a graduated levelling staff, with sliding vane, price 12s. 6d., all invented, improved, improved, and manufactured by the exhibiter.

ROBERT TINKLER, of Penrith, Cumberland.

Twelve different sizes of a revolving barrel churn, prices from 60s. to 90s., if fitted up with pulley for steam or water power 10s. extra (was commended at the Society's meeting at Carlisle in 1855); and (new implement) a perpendicular anti-friction churn, price 18s., invented, improved, and manufactured by the exhibiter.

FRANCIS PRIME WALKER, of Market-street, Manchester, Lancashire.

(New implement) a chaff-cutting machine, price £10 another size £7 10s., invented and improved by the exhibiter, manufactured by Wm. Higgins and Sons, of King-street, Salford, Manchester.

JOHN WEIGHELL, of Pickering, Yorkshire.

A thrashing machine, price £52 10s., invented and manufactured by the exhibiter.

THOMAS WHEELER and Co., of Albion Works, Oxford.

A three-horse portable steam engine, price £65; and (new implement) a patent root pulper, price £5 10s., invented and improved by Thomas Wheeler, and manufactured by the exhibiters; a Wheeler and Co.'s patent root grater, price £5 5s.; a circular-saw bench, price, complete, £16 10s. (the prize of 1*l.* was awarded to this implement at the Oxford show, June 1857); a bean mill, price 55s.; (new implement) a patent root pulper, price £5 10s.; one set of steaming apparatus, price 70s.; (new implement) a machine for wringing and mangling, prices, for washing, wringing, and mangling complete, £5 10s.; a mill-stone prover and case, price 55s.; six cast steel mill bills, price 1s. per lb.; six silver-steel mill bills, price 1s. 1d. per lb., and twelve mill bill handles, price 1s. to 1s. 4d. per handle, invented, improved, and manufactured by the exhibiter.

JOHN WHITEHEAD, of Preston, Lancashire.

Drain pipe and tile machine, price £21, another size £14 10s. (prizes have been awarded to this machine at the Royal Agricultural Society's meetings, viz.: at York 1848 20*l.*, at Norwich 1849 20*l.*, at Exeter 1850 commendation, at the Great Exhibition 1851 prize medal—was not exhibited in 1852—at Gloucester 1853 10*l*, at Lincoln 1854 prize medal, at Carlisle 1855 5*l.*, at the Universal Exhibition of Paris 1855 first class medal, at Chelmsford 1856 first prize, at Amsterdam 1857 first prize, besides a number of prizes at local meetings); a double box drain pipe and tile machine, price, including one receiving table and cutting off apparatus, 28*l.*, a double box steam-power or horse-power ditto, price, additional to the last-mentioned machine, for steam-power apparatus, 5*l.* 5s.; an improved brick-pressing machine, price £16 16s.,; an economical chaff engine, price 50s., and a hay and straw cutting machine, price 4*l.*, invented, improved, and manufactured by the exhibiter; a turnip cutter, price 2*l.* 10s.; a combined wringing and mangling machine, price 3*l*, 10s., and a mangle, wringing machine, and washing machine combined, price £5 10s., improved, and manufactured by the exhibiter; a pair of spring brick carriers off, price 15s., invented and manufactured by the exhibiter; a pug mill, with screening apparatus, price 28*l.*, invented by W. C. S. Percy, of Manchester, and patented by him, and manufactured by the exhibiter; a malt mill, price 5*l.* 5s.; a light swing plough, with steel mould board, price 3*l.* 18s.; a plough for general purposes, price 4*l.*; and a heavy swing plough, price 4*l.* 4s., improved and manufactured by the exhibiter; a double mouldboard plough, price 72s.; a three-tine horse-hoe, price 30s.; and a five-tine horse hoe, price 40s., manufactured by the exhibiter; a six-tine horse grubber, price 90s.; a set of hay racks (three sorts) price 6s. 6d, 7s. 6d., and 8s. 6d. each; a corner hay rack, price 7s.; a a set of iron mangers (three sorts), price 9s., 11s., and 13s. each; a set of iron corner mangers (three sorts), price 4s., 5s., and 6s. each; a set of iron pig troughs, straight, prices 4s., 6s., 6s., 7s., and 8s. each; a set of iron circular pig troughs, prices 6s. 6d., 11s., and 19s. each; a set of dog troughs (four sorts), prices 2s. 6d., 5s., 5s. 6d., and 6s. each; and a set of poultry troughs (two sorts), prices 1s. 6d. and 2s. each, improved, and manufactured by the exhibiter; three sizes of a cheese press, prices 38s., 42s., and 48s.; and several sizes of an iron garden roller, price 40s. and upwards, manufactured by the exhibiter; a 19-inch patent lawn-mowing machine, price 6*l.* 10s., manufactured by Shanks, of Arbroath; a pair of grass edging shears (four sorts), prices 2s. 6d., 3s., 4s. 9d., and 6s. 6d.; a patent mangle, price 8*l.* 8s., and a curd mill or grinder, price 18s., manufactured by the exhibiter; a turnip cutter for sheep, price 70s.; a set of garden tools for ladies' use, price 3s. 6d., larger sizes 5s. and 7s.; a pair of pulley blocks, with iron sneaves, price 32s. 6d., invented improved, and manufactured by the exhibiter; a manure pump, price 28s. and upwards, manufactured by the exhibiter; a set of draining tools, price from 15s. 9d. to 49s., manufactured by W. A. Lyndon, of Birmingham (the prize of 5*l.* was awarded to the exhibiters for these tools at the Royal Agricultural Society's meeting at Northampton 1847, also at Lewes 1852); several rolls of double-selvage diamond mesh hare and rabbit proof netting, prices, from 18-in. high, black, per yard, 3d. upwards, invented and manufactured by the exhibiter; and a new churning apparatus, prices from 5*l.* to 15*l.*, invented by W. Bullock Webster, and patented by him, and manufactured by the exhibiter.

JOHN ALLIN WILLIAMS, of Baydon, near Hungerford, Wilts.

(New implement) a lever scarifier and drag for steam or horse power, price 25*l.*, and (new implement) a lever two-furrow and rafter plough, price £12 10s., invented and manufactured by the exhibiter, and a model of a steam cultivator, invented by the exhibiter, and improved by John Fowler, jun.

JOHN WRAY, of Leeming, near Bedale Yorkshire.

(New implement) a patent two-horse reaping machine, price £40, and (new implement) a patent one-horse reaping machine, price £22, invented and manufactured by the exhibiter.

THOMAS BOSTOCK, of No. 9, Hill Top, Burslem, Potteries, Staffordshire.

A registered chaff cutting machine, price 95s., invented, improved, and manufactured by James Cornes, of Barbridge (gained the prize of the Royal Agricultural Society of England at the Lewes meeting in 1852, at Gloucester in 1853, also at Lincoln in 1854); a larger size 10l., pulleys 15s. each; a newly improved chaff cutting machine, price 75s., invented, improved, and manufactured by Richmond and Chandler, of Salford; a chaff cutting machine, with two knives, price 90s, invented, improved, and manufactured by Messrs. Picksley, Sims, and Co., of Leigh, Lancashire; a larger size 7l. 12s. 6d.; a chaff cutter, with treadle, price 60s., invented, improved, and manufactured by James Mellard, of Rugeley; a winnowing, or corn dressing machine, price 8l.; a curd mill, price 40s.; a single cheese press, on wheels, price 55s., and a small chaff cutting machine, price 55s., invented, improved, and manufactured by James Cornes, of Barbridge; a newly invented oil cake mill, price 84s., invented, improved, and manufactured by E. H. Bentall, of Heybridge, Essex (had the first prize awarded to it at Stafford last year); a double roller oil cake mill, price 5l., invented, improved, and manufactured by James Mellard, of Rugeley; a one-row turnip and seed drill with cups, and rake to follow, price 50s., invented, improved, and manufactured by Messrs. Hunt, of Earl's Colne; a one-horse plough, price 55s., invented, improved, and manufactured by J. and F. Howard, of Bedford; a moulding or double tom iron ridging plough, price 70s., and a two-horse plough, with wheels and skim coulter, price 87s. 6d., invented, improved, and manufactured by Messrs. Ransomes and Sims, of Ipswich; a three-horse plough, with wheels, skim coulter, and drag chain, price 92s. 6d., invented, improved, and manufactured by J. and F. Howard, of Bedford; a Cartwright's patent self-relieving chain harrow, with Cambridge's patent stretchers, price 5l. 10s., invented by James Cartwright, of Shrewsbury, improved by W. Cambridge, of Bristol, and manufactured by B. Samuelson, of Banbury; a patent clod crushing roller, price 16l. 10s., invented by George Robinson and Sons, of Barton-on-Humber, and manufactured by B. Samuelson, of Banbury; a two-row turnip and seed cup drill, price 5l., invented and manufactured by Messrs. Rodenhurst, of Market Drayton; a patent wheel hand rake, for hay, corn, couch grass, stubble, &c., price 40s., invented, improved, and manufactured by Messrs. Smith and Ashby, of Stamford; a parallel expanding horse hoe, price 50s., and an improved lever cultivator or grubber, price 5l., invented, improved, and manufactured by W. and J. Rodenhurst; a set of patented jointed harrows, price 80s., invented, improved, and manufactured by J. and F. Howard, of Bedford (nine first prizes awarded by the Royal Agricultural Society to these harrows); a washing, wringing, and mangling machine, price 5l., invented, improved, and manufactured by S. Briggs and Co., of Keighley; an Archimedian root-washer, for washing potatoes, turnips, carrots, &c., price 5l., improved and manufactured by B. Samuelson, of Banbury; a patent root pulper, price 6l. 6s., pulleys extra, invented, improved, and manufactured by E. H. Bentall, of Heybridge, Essex; a patent combined bean and oat mill and oil-cake breaker, price 7l. 10s., invented by G. A. Biddell, of Ipswich; a new registered bean and oat &c. mill, price 95s., invented, improved, and manufactured by Messrs. Picksley, Sims, and Co.; a Yankee or hydro-thermal churn, price 45s., invented, improved, and manufactured by B. Moore and Co., of London, and a lot of samples (various) of Griffin, Morris, and Griffin's Wolverhampton special bone manures, price 8l. per ton, superphosphate 7l. 10s. do., prepared bone 7l. 10s., Thorley's food for cattle 2l. 10s. per cwt., Long's and Cooper's sheep and cattle dressing, foot-rot lotion, and wheat dressing, and M'Dougall's disinfecting powder 10s. per cwt., or 10l. per ton.

SAMUEL DEAN, of Chester.

A set of very light shaft farm harness, price 6l. 10s., manufactured by the exhibiter; a set of leading harness to match, price 5l. 10s.; a set of very light improved Scotch farm harness or gears for shaft horse, price 5l. 10s.; a set of leading Scotch gears to match, price 5l.; a set of heavy strong cart gears for shaft horse, price 7l.; four cart collars suitable for farm use, price 19s.; a first-rate set of gig harness, price 10l.; other sets at 8l. and 7l.; a set of superior pair-horse carriage harness, price 29l.; four very lightly made gentlemen's hunting saddles, price 5l.; a lady's very superior-made saddle, price 9l.; a lady's best plain saddle, price 7l. 10s.; gentlemen's four best improved riding bridles, price 24s.; a rounded double rein bridle, price 34s.; a soft quilted saddle, with moveable heads, price 90s.; a suite of improved horse clothing, price 84s.; one hundred gold and silver mounted gig and riding whips, of various descriptions, price 5s. to 60s. each.

THOMAS KENNAN and SON, 18 and 19, Fishamble-street, Dublin.

(New implement) Kennan's machine for straining wire fence, price 25s., and (new implements) a set of Kennan's tools for knotting fence wires, price 7s. 6d.; a wire-straightening machine, price 10s.; (new implement) Kennan's collar vice, price 3s. 6d., and (new implement) Kennan's log-sawing machine, price 50s.—all invented and manufactured by the exhibiters; a set of five improved chisel-toothed saws, price 7s. 6d. to 24s., manufactured by the exhibiters; an apparatus for blasting roots and stumps of trees, price 30s., improved and manufactured by the exhibiters; (new implement) Kennan's house and garden ladder, price 30s, invented and manufactured by the exhibiters.

R. FORSHAW and Co., of Liverpool, Lancashire.

A weigh bridge, price 45l., invented and manufactured by the exhibiters; a cart and cattle weighing machine, price 18l.; a sheep weighing machine, price 7l. 10s., and a sack weighing machine, price 5l. 5s.; smaller size 4l. 4s., invented, improved, and manufactured by the exhibiters; a platform weighing machine, price 10l. 10s., invented by Fairbank, of America, improved and manufactured by the exhibiters; a hay and straw cutter, price 5l. 10s., and a chaff cutting machine, price 70s.; smaller size 45s., improved and manufactured by the exhibiters; a turnip slicer, price 60s., and an oilcake crusher, price 50s., manufactured by the exhibiters; an oilcake breaker, price 63s.; a combined wheat mill and dressing machine, price 7l. 10s., and a large grain bruiser, price 26l. 10s., invented, improved, and manufactured by the exhibiters; a bean and oat crusher, price 6l. 10s., smaller size 5l. 5s, pulley 7s. 6d. extra, manufactured by the exhibiters; a truck, price 13s. 6d., another size 15s. 6d., invented, improved, and manufactured by the exhibiters; a strong grubber, price 7l. 10s., manufactured by the exhibiters; an improved horse hoe, price 70s., manufactured by Howard, of Bedford; a double mould-board plough, price 95s., manufactured by Miller, of Dunbar (has taken the prize of the Royal Agricultural Society of Ireland for many years); a pair of strong harrows, price 80s., manufactured by the exhibiters; a patent cheese press, price 5l., manufactured by Thewlis and Griffiths; a garden chair, price 25s. and 27s. 6d., manufactured by the exhibiters; a selection of steel forks, price 5s. 6d. and 6s. 6d. each, manufactured by Parkes and Lyndon, of Birmingham.

ALBERT AND THEODORE FRY, of Temple Gate, Bristol.

A family Cobourg, price 38*l.*, improved and manufactured by the exhibiters; an improved Hannam's skeleton harvest cart, price 16*l.* 10s., invented by J. Hannam, of Burcott Park, Oxon, improved and manufactured by the exhibiters; a corn blower, price 3*l.* 10s., a corn dressing machine, price 6*l.* 6s., and (new implement) an improved corn dressing machine, price 8*l.* 10s., improved and manufactured by the exhibiters; a root grater, price 3*l.* 10s. and upwards to 6*l.*, invented by Bushe and Barter, of Lismore and Blarney, improved and manufactured by the exhibiters; a chaff machine, price 4*l.*, improved and manufactured by the exhibiters; a Cornes' chaff machine, price 4*l.* 10s., invented by J. Cornes, of Barbridge, improved and manufactured by the exhibiters; (new implement) an improved chaff machine, price 6*l.*, and (new implement) an improved oilcake crusher, price 3*l.* 10s., invented improved, and manufactured by the exhibiters; a prize grass seed distributor, price 3*l.* 10s., improved and manufactured by the exhibiters (has received the following prizes: from the Bath and West of England Agricultural Society at Plymouth in June 1853 2*l.*, at Bath in June 1854 2*l.*, at Tiverton in June 1855 2*l.*, at Yeovil in June 1856 2*l.*, from the Royal Agricultural Society of Ireland at Athlone in August 1856 3*l.*, at Waterford in August 1857 5*l.*); an iron horse hoe, price 3*l.* 10s., with extra shares 3*l.* 17s. 6d. and upwards, invented by Robert Cozens, of Pilton, improved and manufactured by the exhibiters (this machine was awarded a special prize of 3*l.* at the Bath and West of England meeting at Yeovil in June 1856, prize of 2*l.* at the Royal Agricultural Improvement Society of Ireland's meeting at Waterford in August 1857, commended at Salisbury in July 1857); an American iron pointed horse rake, price 1*l.* 10s. and upwards, and an iron drain mouth, price 2s. 6d. and upwards, improved and manufactured by the exhibiters; and a spring balance, price 3s. 6d. and upwards.

JOSEPH GILBERT, of Evesham, Worcestershire.

(New implement) a portable combined thrashing machine, to prepare corn for market, price 100*l.*, invented and manufactured by the exhibiter.

DAVID HARKES, of Mere, near Knutsford, Cheshire.

A bone mill to grind stewed bones by hand or steam power, price 14*l.*, a cheese press, price 5*l.*, smaller size 4*l.*, specimens of a plough, price 3*l.* 10s. and upwards, a wheel plough, price 5*l.* 5s., a drill plough, price 3*l.* 10s., a cultivator or scarifier, price 6*l.* 10s, larger size 7*l.* 10s., a drill, scarifier, or grubber, price 3*l.* 15s., a parallel expanding horse hoe, price 3*l.* 10s. (awarded the Society's prize of 5*l.* at Southampton, and of 2*l.* at Shrewsbury), a set of harrows, price 4*l.* 4s., and a pair of drill harrows, price 2*l.*, invented and manufactured by the exhibiter.

Henry Hayes and Son, of Stamford, Lincolnshire.

An improved one horse Scotch cart, price 13*l.* 15s., invented and manufactured by the exhibiters (highly commended by judges of Royal Agricultural Society at Salisbury, also obtained the prize of the North Lincolnshire Agricultural Society in 1858); an improved harvest cart, price 15*l.* 15s., and a light spring Lorrie or dray, price 30*l.*, invented, improved, and manufactured by the exhibiters, and a light spring pair horse waggon, price 42*l.* 10s., improved and manufactured by the exhibiters.

George Kings, of Gravelly Hill, Aston Road, Birmingham.

A steam power thrashing and winnowing machine, price 95*l.*, invented, improved, and manufactured by the exhibiter.

Oliver Maggs, of Bourton, Dorset, near Wincanton, Somersetshire.

An 8 horse power portable steam engine, price 200*l.*, a 4 horse ditto, price 140*l.*, a 2½ horse ditto. 60*l.*, an 8 horse power fixed steam engine, price 200*l.*, a 2 horse ditto, price 50*l.*, a patent combined bolting thrashing machine, with apparatus for finishing corn for market, price 130*l.*, a ditto without the apparatus, price 83l., a patent improved straw shaker, price 15*l.*, an improved 2 horse power, in iron frame, price 12*l.* 12s., and an improved portable corn mill, price 34s., invented, improved and manufactured by the exhibiter; an improved oat, bean, and corn crushing mill, price 5*l.* 10s., and an improved chaff cutter with 3 knives, for steam or other power, price 15*l.*, improved and manufactured by the exhibiter; an improved chaff cutter with 3 knives, for steam or other power, with sifting apparatus, price 14*l.* 2*s.*, invented, improved, and manufactured by the exhibiter; a chaff cutter for hand power, price 4*l.* 10s., manufactured by the exhibiter; a small chaff cutter with 2 knives, for hand power, price 3*l.*, and an improved vertical turnip slicer, price 2*l.* 15s., improved and manufactured by the exhibiter; an improved screw and lever cheese press, 2*l.* 10s., and an improved double screw lever cheese press, price 5*l.*, invented, improved, and manufactured by the exhibiter.

Priest and Woolnough of Kingston-on-Thames, Surrey.

A nine-row lever corn mill, price 22*l.*, improved and manufactured by the exhibiters; a patent horse hoe, price 17*l.*, invented by William Woolnough, improved and manufactured by the exhibiters (received prize of 2*l.* at Salisbury, 1857); a fore-carriage steerage, price 4*l.* 10s., improved and manufactured by the exhibiters; (new implement) a Rowley's blast drill, price 18*l.*, invented by J. Jephson Rowley, of Rowthorn, near Chesterfield, and improved and manufactured by the exhibiters; (new implement) a turn table, skid, or break, price 12s. 6d., invented and manufactured by the exhibiters.

George Turner, of 196, Great Dover-street, Borough, London.

A steel mill for grinding agricultural produce, price 10*l.* 10s., invented and manufactured by J. White, of London; (new implement) a patent churn, price 3*l.*, invented by E. P. Griffiths, of Camberwell, and improved and manufactured by George Kent, of London; (new implement) a combined ladder and fire escape, price 1*l.* 1s., invented by T. Sayers, of London, and improved and manufactured by the exhibiters; (new implement) a whisk, price 1*l.* 10s., invented by E. P. Griffiths, of London, improved by George Kent, of London, and manufactured by the exhibiter; (new implement) a printing press, price 1*l.* 1s., invented and manufactured by Wilson, Newton, and Co. of London; a model of a patent mangle, price 2*l.* 2s., invented and manufactured by Howland and Co., of London; (new article) model of an invalid bed, price 15*l.*, invented and manufactured by Wilson, Newton and Co., of London; an apple-paring machine, price 8s. 6d.; mincing machines, price 2*l.* 2s. and 1*l.* 1s.; a box of moveable letters, price 1d. each; a patent knife-cleaning machine, price 3*l.* 10s. and 4*l.* 10s., invented and manufactured by F. Golliffe and Co., of London; a patent washing machine, price 2*l.*, invented by J. Cornes, of London, and manufactured by the exhibiter; a knife-cleaning machine price 1*l.* 1s., invented and manufactured by J. Hadlers, of London; a knife-cleaning machine, price 10s. 6d., invented by T. Fourdrinier, of London; a knife-cleaning machine, price 1*l.* 15s., invented by G. Genhart, of London, and manufactured by the exhibiter; a patent fumigator, price 5s., invented and manufactured by S. Gidney, of Norwich; a thermometer for hot-house purposes, price 2s. and 4s. 6d.; a high-pressure water tap, price 5s. 6d., invented and manufactured by Gidney and Co., of Norwich; a sample of inodorous patent felt, price 1d. per square foot, invented and manufactured by Crogan and Co., of London; a sausage-making and mincing machine, price 1*l.* 10s.; a case of machine for grinding spices, &c.; price 1s. each; a case of bullock-leaders, price 1s. each, invented and manufactured by the exhibiter; a padlock, price 6d.; a patent nursing chair 1*l.* 1s. and upwards, invented and manufactured by Wilson, Newton, and Co. of London; a patent sewing machine price 10*l.* 10s., invented by D. Harris, of London, and manufactured by Wilson, Newton, and Co.; a coffee mill, price 6s. and upwards; an oat crusher with steeled rollers, price 2*l.* 5s., invented and manufactured by White and Co., of London; an assortment of barometers, price from 2s., invented and manufactured by E. Archer, of London; a quantity of Sussex truss baskets, price from 1s., invented and manufactured by Gidney and Co. of Norwich; a bundle of Prussian hoes, price 2s. each, and a patent garden scraper, price 2s. 6d., invented and manufactured by the exhibiter; a patent washing machine, price 2*l.*, invented by J. Cornes, of London, and manufactured by the exhibiter patent hydrothermal churns, price 1*l.* 10s. and 2*l.* 10s., invented and manufactured by Moore and Co., of London; a coffee mill, price 6s., invented and manufactured by the exhibiter; a padlock, price 1s.; a Japan tin box, price 2s. 6d.; a japan tin box, price 5s. 6d.; and a cottage mangle, price 3*l.* 15s.

Wallis and Haslam, of Basingstoke, Hants.

An improved two-horse power patent thrashing machine, price £36, invented and manufactured by the exhibiters; a three-horse power portable ditto, price £42 10s., a four-horse-power portable ditto, price £52 10s., and an improved winnowing machine, price £10, invented, improved, and manufactured by the exhibiters; a Boby's patent corn screen, price £7, invented by Robert Boby, of Bury, improved and manufactured by the exhibiters; a patent barley hummeller and corn screen united, price £6 10s. 6d., and a four-horse power portable combined thrashing machine, price £77 10s., invented, improved, and manufactured by the exhibiters; a hand-power chaff machine, price £6 15s., a one-horse hoe, price £2, a horse hoe for hoeing or scarifying, price £2 2s., a two-wheel iron plough, price £4 13s. 6d., a two-wheel iron plough, price £4, with steel turnfurrow £4 7s. 6d., and a one-wheel iron plough, with skim-coulter, price £3 12s. 6d., manufactured by the exhibiters; a newly-invented patent spherical bearing and plummer block, price £1 12s. 6d., and a patent machine for drilling metals by hand or other power, price £5 5s., (commended by the judges at the Salisbury meeting of the Royal Agricultural Society), invented, improved, and manufactured by the exhibiters; a 1½-inch patent spherical plummer block and bearings, price £1, invented by the exhibiters.

Robert Mathers, of Marlock, Somersetshire.

A patent lifting jack, price 4*l.* 10s. and upwards, invented and manufactured by Joseph Haley, of Manchester; a patent mowing machine, price 6*l.* and upwards, invented and manufactured by Joseph Green, of Leeds (commended as the best of four competitors at the London Horticultural Society's Gardens at Chiswick, June 5th, 1857).

John Windsor, of Oswestry, Salop.

A corn dressing or winnowing machine, price 5*l.* 10s. and upwards; and a clover and grass seed drill, price 3*l.* 10s. (this implement took the prizes at Cork and Dublin in the years 1851 and 1852), improved and manufactured by the exhibiter; a patent prize broadshare cultivator and sub-soil plough, price 7*l.* 17s. 6d., invented, improved, and manufactured by E. H. Bentall, of Heybridge, Maldon (obtained three prizes at the Chelmsford meeting); patent prize root pulpers, price 5*l.* 5s., and upwards, invented and manufactured by E. H. Bentall, of Heybridge (have taken the first prizes wherever exhibited since 1856, including the following places—Dublin, Rotherham, Norwich, and Evesham, in 1856, and Newton Abbott, Swaffham, Helmsley, Bushbury, York, and Glasgow, in 1857); a chaff cutting machine, price 3*l.* 15s., invented and manufactured by Richmond and Chandler, of Salford; a cake mill, price 3*l.* 10s., improved and manufactured by W. L. Fisher, of Thrapston; several sizes and specimens of a wrought-iron garden chair, price 12s. and upwards, manufactured by the exhibiter; a roll of galvanized wire netting, price, per lineal yard, 6d., and a roll of japanned wire netting, price, per lineal yard, 4½d., invented and manufactured by Baker and Co., of Birmingham; a pair of garden seats or wire-arm chairs, price, per pair, 1*l.* 4s, and a cottage verandah with zinc top, price 5*l.*, manufactured by the exhibiter.

WILLIAM WOOFE, of Regent-street, Gloucester.

(New implement) a paring plough, price 6*l.* 6s., invented and manufactured by the exhibiter; (new implement) a washing machine, price 5*l.* 5s., invented by J. Lamb Hancock, of London, and manufactured by F. Lamb Hancock, of Spa, Gloucester; (new implement) a plough with pulverizer, price 5*l.*; and (new implement) a horse hoe, price 5*l.* 5s., invented and manufactured by the exhibiter.

WILLIAM BALL, of Rothwell, Northamptonshire.

An iron plough for general purposes, price 4*l.* 8s. (a prize of 5*l.* was awarded at the Royal Agricultural Society's meeting at Norwich, 1849, a prize of 7*l.* at Exeter, 1850, a first-class prize medal at the Great Exhibition of All Nations, 1851, a first-class prize medal at the Dublin Exhibition, 1853, commended at Lincoln, 1854, a first-class prize medal at the Paris Exhibition, 1855, also commended at Carlisle, 1855, a first-class prize medal at Melbourne, Australia, 1856, a prize of 4*l.* at Chelmsford the same year); several of Ball's patent criterion prize ploughs, price 4*l.* 8s., with skim 6s. 6d. extra; an iron plough, price 5*l.* 10s. (a prize of 7*l.* was awarded at the Royal Society's meeting at Gloucester, 1853, commended at Carlisle, 1855, and a prize of 3*l.* at Chelmsford, 1856); an iron plough, price 4*l.* 8s. (a prize of 2*l.* was awarded by the Royal Agricultural Society at Chelmsford, 1856, and numerous local prizes); a two-horse waggon, price 30*l.* (a prize was awarded at the Royal Agricultural Society's meeting at Lewes, 1852, and a first-class prize medal at the Paris Exhibition, 1855); three sizes of a one-horse cart, price 13*l.* 10s. and upwards; an iron scarifier, cultivator, and grubber, price 6*l.* 6s. 6d.; and an iron scarifier, price 7*l.* 7s., all invented, improved, and manufactured by the exhibiter.

EDWARD HAMMOND BENTALL, of Heybridge, near Maldon, Essex.

A new oilcake mill, price 5*l.* 5s., invented, improved, and manufactured by the exhibiter; an improved prize oilcake mill, price 3*l.* 13s. 6d., another size 42s. (the first prize was awarded at the North Lincolnshire Society's meeting at Louth, 1857); a patent prize root pulper, price 8*l.* 8s. pulleys extra, another size 6*l.* 6s. and 5*l.* 5s., invented, improved, and manufactured by the exhibiter; a chaff cutter, price 52s. 6d., manufactured by the exhibiter; several sizes of pulleys from 10 inch up to 30 inches, prices from 6s. to 31s.; several descriptions of troughs for hogs, sheep, &c., at prices from 7s. to 18s.; and several sets of Bentall's patent light and heavy or drag seed harrows, price from 73s. to 85s., improved and manufactured by the exhibiter (obtained a prize of 40s. at the Chelmsford meeting of the Royal Agricultural Society); two patent ploughs, price 43s. 6d. and 70s., invented, improved, and manufactured by the exhibiter; a quantity of shares, price 6s. 6d. per dozen invented and manufactured by the exhibiter; a mangel hoe, with wood beam, price 42s., invented, improved, and manufactured by the exhibiter; a patent combined ridging plough and horse hoe, price including two arms and cutters 54s. 6d.; a patent single ridge hoe, price 42s.; a patent double ridge horse hoe, price 73s. 6d. (received a prize at the North Lincolnshire meeting at Louth in 1857, and at the Royal Agricultural Society at Salisbury in 1857); a patent broadshare, price 47s. 6d.; a patent light five-tined broadshare and cultivator, price 80s.; a patent light seven-tined broadshare and cultivator, price 90s. (obtained the first prize at Swaffham in 1857); a quantity of shares, price from 4d. upwards; a patent light broadshare plough, price 5*l.* 5s.; and a patent light iron beamed broadshare plough price 5*l.* 15s. 6d., invented and manufactured by the exhibiter; a patent light iron beam, subsoil plough, price 70s.; a patent light iron beamed broadshare and subsoil plough, price 6*l.* 6s.; a patent light iron beamed broadshare, cultivator, and subsoil plough, price 7*l.* 17s. 6d. (obtained three prizes of 8 sovs. at the Chelmsford meeting); and a patent light iron beamed broadshare, cultivator, scarifier, and subsoil plough, price £8 18s. 6d., invented, improved, and manufactured by the exhibiter; a quantity of shares with prongs to fit Bentall's broadshare ploughs, price 1s. 6d. and 1s. 10d.; a quantity of fallow shares, price 2s.; a patent broadshare and subsoil plough, £6 6s.; a patent subsoil plough, price 83s. 6d. (received the first prize of 5 sovs. as the best subsoil plough at the Royal Agricultural Society's meeting at Chelmsford); a patent broadshare, subsoil plough, and cultivator, price £8 18s. 6d; a patent broadshare and subsoil plough, price £6 16s. 6d. (this implement received the two prize medals at the Great Exhibition of 1851, and as the best cultivator at the Lincoln meeting of the R. A. S.); a quantity of broadshares for the foregoing implements, price 6s. and upwards per dozen; and a quantity of shares, points, &c., price 12s. per dozen and upwards, invented and manufactured by the exhibiter; a two horse power portable steam engine, price 70*l.*, improved and manufactured by Mr. James Haywood, jun. of Derby; a patent root pulper, price £8 8s., invented, improved, and manufactured by the exhibiter; a Cornes's patent chaff cutter, price £10 10s., improved and manufactured by the exhibiter; and a new oilcake mill, price £5 5s., invented and manufactured by the exhibiter; an improved prize oilcake mill, price 42s. and upwards, invented, improved, and manufactured by the exhibiter; a horse power for one or two horses, price £13 13s., and an improved intermediate motion for horse power, price 84s., invented and manufactured by the exhibiter; a patent root pulper, price £8 8s., invented, improved, and manufactured by the exhibiter; a Cornes's patent chaff cutter, price £10 10s., improved and manufactured by the exhibiter; a new oilcake mill, price £5 5s., invented and manufactured by the exhibiter; an improved oilcake mill, price 42s.—another size 73s. 6d.; and (new implement) a patent portable combined horse works and root pulper, price £21, invented, improved, and manufactured by the exhibiter.

THOMAS BRADFORD of Market-place, Manchester, Lancashire.

A Bradford's patent washing machine, price 3*l.* 10s. to 15*l.* 15s, invented and manufactured by the exhibiter; an improved wringing and mangling machine, price 4*l.* 4s., improved and manufactured by the exhibiter.

CHARLES BURRELL, of St. Nicholas' Works, Thetford, Norfolk.

A patent locomotive traction engine or steam horse, price 800*l.*, if fitted without the extra pumps 50*l.* less, invented by James Boydell, of London, and manufactured by the exhibiter; a 7-horse-power single cylinder traction engine, price 380*l.*, invented and manufactured by the exhibiter; a combined one-way plough, price 60*l.*, invented and manufactured by John Williams, of Baydon; a patent steam cultivator, price 35*l.*, invented and manufactured by R. Coleman, of Chelmsford.

THOMAS BUTCHER, of Agbrigg, near Wakefield, Yorkshire.

A 3-horse stubble-skim, price 5*l.* 5s., invented, improved, and manufactured by the exhibiter; a 3-rowed land-presser with seed drill and harrow, price 13*l.*, an expanding horse-hoe for hoeing turnips, beans, &c., price 3*l.*, and a strong wood swing plough, price 2*l.* 15s., improved and manufactured by the exhibiter.

COLEMAN and SONS, of Chelmsford, Essex.

A patent expanding harrow, price 3*l.* 15s. and upwards to 8*l.* 10s., a patent drag harrow, cultivator, or scarifier, price 7*l.* 10s. and upwards to 14*l.* 10s., and a patent steam cultivator, price 35*l.*, all invented by Richard Coleman, of Chelmsford, and improved and manufactured by the exhibiters; a patent potato digger, price 18*l.* 10s., invented by John Hanson, of Doagh, and improved and manufactured by the exhibiters.

CORNELIUS CORNES, of Hackney-road, near London.

(New implement) two patent churns, price 2*l.* 2s. and 2*l.* 15s.; a patent sewing machine, price 10*l.* 10s, a case of magic bassinet, price 3*l.* 13s. 6d., and specimens of patent nursing chairs, price from 14s. to 10*l.* 10s. each, invented and manufactured by Wilson, Newton, and Co., of 144, High Holborn, London; a model of the new patent invalid bed, price 12*l.*, invented by George Robinson, of 144, High Holborn, and manufactured by Wilson, Newton, and Co., of 144, High Holborn, London.

William Clay, of the Bridgewater Foundry, Ellesmere Salop.

A 7-horse power portable steam engine, price 220*l.*, and an improved portable combined thrashing machine, price 95*l.*, invented, improved, and manufactured by the exhibiter; a light plain 1-horse cart, price 12*l.* 10s., and a strong plain 1-horse cart, price 15*l*, invented and manufactured by the exhibiter; an improved wrought-iron fire-proof safe, price 8*l.*, invented, improved, and manufactured by Miller and Son, of Liverpool; a patent broadshare and subsoil plough, price 16*l.* 16s. 6d. (gained the two prize medals at the Great Exhibition of 1851, and the prize at the Lincoln meeting of the Royal Agricultural Society 1854); a patent broadshare cultivator and subsoil plough, price 7*l.* 17s. 6d. (obtained three prizes at the Chelmsford meeting); a patent light iron beamed broadshare plough, price 5*l.* 15s. 6d., and a patent root-pulper, price 5s. 5s. and upwards (the pulper has taken the first prize wherever exhibited since 1856, including the prizes at the following places—Dublin, Rotherham, Norwich, and Evesham in 1856, Newton Abbott, Swaffham, Helmsley, Bushbury, York, and Glasgow in 1857); a sack-weighing machine, price 4*l.* 4s, invented, improved, and manufactured by R. Forshaw and Co., of Liverpool; a light useful wrought-iron horse-hoe, price 2*l.*, invented and manuafctured by the exhibiter; an improved double-row cup turnip drill, price 4*l.* 15s., invented, improved, and manufactured by the exhibiter; a combined double-row cup turnip and mauure drill, price 10*l.*, invented, improved, and manufactured by Gower of Market Drayton, Salop; an improved light wrought iron single-row turnip drill, price 1*l.* 15s, an improved 4-horse wrought iron lever scarifier, price 7*l.*, an improved 3-horse wrought iron lever scarifier, price 6*l.*, an improved ridge plough with two wheels, price 3*l.* 5s., and an improved ridge-plough and horse-hoe, price 4*l*, invented, improved, and manufactured by the exhibiter.

Cooke Brothers, of Shrewsbury, Shropshire.

A 7-horse portable steam engine, price 200*l.*, a 7-horse portable thrashing machine, price 90*l*, improved and manufactured by the exhibiters; (new implement) a corn or seed screen (adjustable), price 2*l.* 5s., invented and manufactured by the exhibiters.

James Cornes, of Barbridge, near Nantwich, Cheshire.

Fourteen different sizes and specimens of a registered chaff-cutting machine, with two and three knives, price from 2*l.* 15s. to 13*l.* (gained the first prize given by the Royal Agricultural Society of England for eleven years in succession), invented by John Cornes, sen., of Barbridge, improved and manufactured by the exhibiter; a dressing machine, price 8*l.*, (new implement) three sizes of a cheese apparatus, price 2*l.* 5s. to 2*l.* 15s., a curd mill, price 2*l.*, and three sizes of a cheese stool for heating cheese, price 10s. to 12s., all invented, improved, and manufactured by the exhibiter; six sizes of a single cheese press, price 2*l.* 10s. to 3*l.* 3s., improved and manufactured by the exhibiter; a seed drill, invented by John Cornes, senior, price 2*l.* 10s., improved and manufactured by the exhibiter; a one-horse cart for general purposes, price 15*l.*, a bone mill, price 15*l*, a farmer's mangle, price 4*l.* 4s, a patent mangle, price 10*l.* 10s., a four-horse power works, price 17*l.*, a two horse power works, price 15*l.*, a one or two-horse power works, price 12*l.* 10s., a four-horse power thrashing box, price 15*l.*, a churning apparatus, price 6*l.* 10s., two churns and staffs, price 3*l.* 10s., and a potato mill, price 1*l.* 15s.,, invented, improved, and manufactured by the exhibiter; a carriage or lifting jack, price 15s., and a set of whippletrees, price 12s. 6d., improved and manufactured by the exhibiter; a patent economical drill for dry manure and seeds, price 15*l.*, invented and manufactured by R. and J. Reeves, of Britten; a lifting-jack, price 3*l.* 5s (a card of commendation was awarded by the Royal Agricultural Society held at Lincoln 1854), improved and manufactured by John Eaton, of Twywell Works; a liquid manure cart, price 14*l.*, invented by Stretton, of Bristol, improved and manufactured by the exhibiter; a clod crusher and Norwegian harrow, price 7*l.* 10s., invented by the Rev. W. J. Wharton, of Birmingham, improved and manufactured by the exhibiter; a patent lever iron tooth horse rake for hay, corn, stubble, couch, grass, &c., price 7*l.* 10s., invented, improved, and manufactured by Smith and Ashby, of Stamford; a combined mill for oats and beans, price 5*l.*, improved and manufactured by R. White, of London; an improved corn crusher, price 5*l.* 5s., invented, improved, and manufactured by Richmond and Chandler, of Manchester; a linseed cake-breaking machine, price 3*l.* 15s., improved and manufactured by B. Samuelson, of Banbury; a Moody's patent turnip cutter, price 4*l.* 10s., invented by Edmnnd Moody, late of Maiden Bradley, improved and manufactured by Hugh Carson, of Warminster; a Phillips's patent improved root mincer, price 6*l.* (awarded the Society's prizes at the Lincoln and Carlisle meetings), invented by Frederick Phillips, of Brandon, improved and manufactured by James Woods, of Stowmarket; and a light one-horse hoe, price 2*l.* 10s., invented, improved, and manufactured by the exhibiter.

Thomas Cawley, of Nantwich, Cheshire.

A patent hay-making machine for one horse, invented and manufactured by W. N. Nicholson of Newark (the first prize was awarded, after trial, at the Salisbury Meeting of the Royal Agricultural Society in 1857), price 15*l*; an improved lever corn and seed drill, 11 coulter, manufactured by Gower and Sons, of Market Drayton, price 26*l.* 7s.; an improved five-row corn drill, invented, improved and manufactured by J. Gilbert, of Eversham, price 7*l.* 7s.; an improved two-row turnip and mangel wurzel drill, manufactured by W. and J. Rodenhurst, of Market Drayton, price 5*l.*; a Bentall's improved broadshare, price 5*l.* 5s.; and a Bentall's improved drill plough and scuffler, price 57s. 6d., invented, improved, and manufactured by E. H. Bentall, of Heybridge; an improved horse rake, with steel teeth, manufactured by L. and F. Howard, of Bedford (two first prizes have been awarded to this implement by the Royal Agricultural Society of England), price 8*l.* 10s.; a set of four-beam patent harrows, invented, improved, and manufactured by J. and F. Howard, of Bedford, price 74s.; a set of four-beam harrows, manufactured by John Dodd, of Balterby, price 70s.; a pony plough with one wheel, price 42s.; a one-horse plough with one wheel, price 55s.; a two-horse swing plough, price 70s.; and a two-horse plough with two wheels and skim coulter, price 90s., invented, improved, and manufactured by Ransomes and Sims, of Ipswich; a one-horse plough with one wheel, price 55s.; a two-horse plough with two wheels and skim coulter, price 90s.; and a two-horse plough with two wheels and skim coulter, price 97s. 6d, invented, improved, and manufactured by J. and F. Howard, of Bedford; three sizes of a Bentall's patent root pulper, invented, improved, and manufactured by E. H. Bentall, of Heybridge, price 5*l.* 5s. and upwards; a Moody's patent turnip and mangel cutter, invented by E. Moody, of Maiden Bradley, improved and manufactured by Hugh Carson, of Warminster, price 90s.; a weighing machine, manufactured by W. and T. Avery, of Birmingham, price 45s.; an iron sheep trough on wheels, price 30s.; and a wrought-iron sheep-rack on wheels, price 44s., invented, improved, and manufactured by Hill and Smith, of Brierley Hill; a land roller with three barrels, manufactured by John Prince, of Nantwich, price 11*l.*; a garden roller, manufactured by the Coalbrookdale Company, of Shiffnall, price 46s.; a patent wringing and mangling machine, manufactured by John Starkey, of Liverpool, price 70s.; a galvanized liquid manure pump, manufactured by B. Samuelson, of Banbury, price 45s.; a cast-iron vase, price 30s.; and a cast-iron pedestal for vase, price 10s., manufactured by James Haywood, of Derby; a cast-iron trough for small pigs, with 14 divisions, manufactured by James Millard, of Rugeley, price 8s. 6d.; several sizes of a cast-iron pig-trough, manufactured by the Coalbrookdale Company, of Shiffnal, price 7s. and upwards; three sizes of a registered chaff-cutting machine with two knives, invented by John Cornes, senr., of Barbridge, improved and manufactured by James Cornes, of Barbridge (gained the prize of the Royal Agricultural Society of England at the Lewes meeting 1852, at Gloucester 1853, also at Lincoln 1854), price 4*l.* 15s, 6*l.* 15s. and 10*l.*; a chaff-cutting machine with two knives, price 55s.; (new implement) a cheese apparatus, price 45s. and 50s.; and a curd mill, price 40s., invented, improved, and manufactured by James Cornes, of Barbridge; a No. 1. cheese press, improved and manufactured by James Cornes, of Barbridge, price 50s., 55s., and 60s.; a seed drill, invented by John Cornes, senr., of Barbridge, improved and manufactured by James Cornes, of Barbridge, price 50s.; a kibbling mill for oats and beans, manufactured by B. Samuelson, of Banbury, price 5*l.* 10s.; a wrought-iron sheep hurdle, price 4s. 6d. and 5s. 6d.; an improved iron horse drag-rake, manufactured by Ransomes and Sims, of Ipswich (highly commended at the Royal Agricultural show at Lincoln, and obtained the first prize at Salisbury in 1857), price 7*l.* 10s.; and a Howard's improved scarifier, manufactured by J. and F. Howard, of Bedford, price 6*l.*

Frederick Michael Gregory, of Shavington Hall, near Market Drayton, Shropshire.

A registered chaff-cutter with two knives, invented, improved and manufactured by James Cornes, of Barbridge (gained the first prize of the Royal Agricultural Society of England at the Lewes meeting 1852, at Gloucester 1853, also at Lincoln 1854, as "the best chaff engine to be worked by hand-power"), price 4*l.* 15s.

William Foster, of Lincoln.

A seven-horse power portable steam-engine, price 210*l.*: and a combined portable thrashing machine, price 105*l.*, improved and manufactured by the exhibiter: and (new implement) a clover drill and horse rake combined, invented and manufactured by Thomas Lack, of Spalding, price 25*l.*

Thomas Davies, of Oswestry, near Shrewsbury, Shropshire.

A 26-inch winnowing or corn dressing machine, price 8*l.*: a 24-inch ditto, price 6*l.*: a winnowing or corn dressing machine, price, including case 6*l.*: a 22-inch ditto, price 5*l.*: and a blower, price 5*l.* invented and manufactured by the exhibiter: a double-action turnip-cutter, price 70s.: a hand turnip-chopper, price 20s.: a two-row turnip and mangel-wurzel seed drill, price 60s.: a two-row turnip and mangel-wurzel cup drill, price 70s.: a one-row turnip and mangel-wurzel brush drill, price 25s.: a barley awner, price 60*l.*: an improved clover and ryegrass seed drill, price 60s.: an improved ryegrass and clover seed drill, price 65s.: a horse hoe, price 40s.: a horse hoe, price 32s.: and a hand drag rake, price 9s., improved and manufactured by the exhibiter: a hand hay rake, manufactured by the exhibiter, price 1s.: a roll of peg lattice, galvanized, 24 in. wide, price 6d., ungalvanized, 5d. per lineal yard: two galvanized garden chairs, price 7s. and 8s. 6d.: a folding garden stool, price 4s. 6d.: a bundle of patterns of wirework: a half-bushel (38 quarts), price 5s.

Job Ellis and Sons, of Oswestry, Shropshire.

An 8-horse-power portable steam engine, price 230*l.*: an 8-horse fixed steam engine, price, exclusive of carriage, brick-work, or masonry, 200*l.*: a 6-horse-power fixed steam engine, price 140*l.*: a combined portable straw-shaking, riddling, winnowing, chaff-separating, barley awning, and smutting machine, price 115*l.*: and a combined portable straw-shaking, riddling, winnowing, chaff-separating, and barley awning machine, price, including patent drum beaters, wood wheels, and patent axles, 95*l.*, all invented, improved, and manufactured by the exhibiters.

John Freer, of Rothley, near Loughborough, Leicestershire.

(New implement) an 8-row patent grain and seed-planting or dibbling machine, price 60*l*, invented and manufactured by the exhibiter.

Greening & Co., of the Victoria Iron and Wire Works, 81, Oxford-street, Manchester, Lancashire.

A patent wire horse, cattle, and sheep fence (every size and variety), price 1s. per running yard and upwards (has been awarded several prizes); several rolls of galvanized hexagonal pattern wire netting, price 6d. per yard and upwards; a circular tree guard, price 10s. and upwards; a set of wire plant guards, assorted sizes (patent machine-made), prices, 21 in. by 9 in., 1s. and upwards; an ornamental garden border (patent machine made), price 9d. per yard; a strong wrought-iron farm gate (economical pattern), price 1*l.* 1s.; a strong wrought-iron premium pattern gate, price 1*l* 5s.; an extra strong wrought-iron premium pattern gate, price 1*l.* 10s.; a pair of fine wrought-iron entrance gates, price, with fittings for stone pillars, 6*l.* 10s.; a best wrought-iron sheep hurdle, price 1s. 11d. per yard and upwards; a best wrought-iron cattle hurdle, price, per yard at the works, 2s. 3d. and upwards; an ornamental fine wrought-iron garden hurdle, price 3s. per yard; an extra strong garden hurdle, price 3s. 6d. per yard; and a strained wire fence, price 1s. 9d. per yard when 1,000 yards or over are ordered, all manufactured by the exhibiters.

John Goucher, of Church Walk Iron Works, Worksop, Nottinghamshire.

A 7-horse power patent combined portable thrashing-machine, price 90*l.*; a 3-horse power patent portable thrashing machine, fitted with horse-gear complete, price 40*l.*; a 3-horse portable barn works or thrashing-machine, price 32*l.* 10s.; a patent drum, price 12*l.*; and a set of six patent beaters, price 4*l.* 2s. 6d., invented, improved, and manufactured by the exhibiter.

A. W. Gower & Sons, of Market Drayton, Shropshire, and Hook, near Winchfield, Hampshire.

A manure drill for general purposes, with 14 coulters, price 48*l.*; a 15-coulter corn and seed drill, price 27*l*- 11s.; an 12-coulter corn drill, price 25*l.* 3s. 6d.; an 11-coulter corn drill, price 22*l.* 6s. 6d.; a 9-coulter corn drill for small occupations price 18*l.*; a 7-coulter small occupation drill, price 17*l.*; a 5-coulter small occupation corn drill, price 15*l.*, all invented improved, and manufactured by the exhibiters; a 2-coulter ridge manure drill for turnips and mangold, price 10*l.*; a 2-coulter ridge drill for turnips and mangold, without manure price 4*l.* 15s.; a 2-coulter ridge drill for turnips, mangold' beans, and peas, price 6*l.* 3s. 6d; and a 1-coulter ridge dril for turnips and mangold, price 2*l.* 17s., invented by Andrewl Gower, of Market Drayton, improved and manufactured by the exhibiters; a broadcast sowing machine for clover, grass, or turnip seeds, price 3*l.* 13s.; another size, 3*l.* 3s.; a chaff-engine with two knives, price 2*l.* 10s.; larger size, 3*l.* 10s.; and a chaff-engine with three knives, price 5*l.* 15s., invented, improved, and manufactured by the exhibiters; an oilcake mill, price 2*l.*; larger size, 3*l.* 6s., both improved and manufactured by the exhibiters; an oilcake mill for making or mealing, price 5*l.* 10s., invented and manufactured by the exhibiters; a sack barrow, price 10s. 6d., improved and manufactured by the exhibiters.

T. F. Griffiths & Co., of Birmingham.

(New implement) four sizes of a Keevil's patent cheese tub, prices 5*l.*, 11*l.*, 25*l.* and 59*l.*; and a milk sieve, price 7s. 6d., invented by Richard Keevil, of Lacock, Wilts, and manufactured by the exhibiters; a whey funnel, price 4s.; and a curd trowel, price 4s., both manufactured by the exhibitors.

Briggs & Starkey (Edward Haigh, agent), of 12, Parker-street, Liverpool, and 173, Woodhouse-lane, Leeds.

A washing, wringing, and mangling machine, had the head prize awarded at the Manchester and Liverpool Agricultural Show in 1857, price 7*l.* 10s.; smaller size, 6*l.*; a large size washing, wringing, and mangling machine, had the head prize awarded at the Liverpool and Manchester Implement Show in 1855, price 9*l.*; and a wringing and mangling machine, price 4*l.*, invented, improved, and manufactured by the exhibiters.

James Lamb Hancock, of 62, Pentonville-road, London.

An improved paring plough, price 4*l.* 15s., invented by William Woofe, of Gloucester, and manufactured by F. L. Hancock, of Spa, Gloucester, and 62, Pentonville-road, London; an improved washing machine, price 10*l.* 10s., invented and manufactured by the exhibiter; a washing machine, price

5*l.* 5s., invented and improved by the exhibiter; and a washing machine, price 3*l.* 10s., invented, improved, and manufactured by the exhibiter.

Hernulewicz and Co., of Western Iron Works, Glasgow, Lanarkshire.

A round rat-proof iron rick stand, resting upon twelve iron pillars, with wide caps, price £6 10s., invented and manufactured by the exhibiters; a strong wrought iron tubular gate, 9 feet wide by 4 feet high, fixed to handsome iron pillars, price £3 15s. and £4 5s. 6d. (has received first premiums at the Royal Highland Agricultural Show, held in Glasgow, August 1857, and at the Royal Improvement Agricultural Society of Ireland, held at Waterford, August 1857); a strong wrought iron tubular gate, 9 feet wide by 4 feet high, arranged with iron mountings for hanging to wooden posts or stone piers, price £2 5s., improved and manufactured by the exhibiters; a strong wrought iron semicircular gate, 9 feet wide by 3 ft. 9 in. high, hung to iron pillars, price £2 19s. (has received the first premium at the Royal Highland Agricultural Show, held at Glasgow in August 1857); a wrought iron wicket, made hare and rabbit proof, price £3 5s., invented, improved, and manufactured by the exhibiters; a neat wrought iron wicket, price £2 15s., invented and manufactured by the exhibiters; a strong wrought iron gate, price £1 5s. and £2 18s, improved and manufactured by the exhibiters; a set of very neat wrought iron entrance gates in the Elizabethan style, price £22 10s., invented and manufactured by the exhibiters; specimens of strong wrought iron hurdles, price from 5s. to 6s. each hurdle; specimens of ornamental hare and rabbit proof wire flakes, price from 2s. 10d. to 3s. 10d. per lineal yard, manufactured by the exhibiters; specimens of hare and rabbit proof wire netting, of different strengths and meshes, price from 6d. per lineal yard and upwards, manufactured by the exhibiters; specimens of iron and wire single-seated chairs, plain and galvanized, price from 5s. 6d. to 25s. each, improved and manufactured by the exhibiters; a handsome iron garden chair (four seats), price £2 14s., manufactured by the exhibiters; a wrought iron garden chair (three seats), price £1 12s., invented, improved, and manufactured by the exhibiters; an iron and wire bower, price £2 5s., improved and manufactured by the exhibiter; a wrought iron pheasant feeder, price 17s. 6d., invented and manufactured by the exhibiters; specimens of pig troughs (assorted), price from 6s. 5d. to £1 each; and a new hand timber-sawing machine, price £5 5s., improved and manufactured by the exhibiters.

James Jackson, of Brighton, Sussex.

An eight-horse power portable steam engine, price £250, invented, improved, and manufactured by the exhibiter.

Aurthur Lyon, of 32, Windmill Street, Finsbury, London.

A machine for pulping steamed roots, price £7 10s.; a machine for cutting raw, or pulping steamed roots, price £7; a machine for cutting carrots, turnips, &c., price £6 10s.; a machine for cutting raw or pulping steamed roots for pigs, price £6; a machine for cutting or mincing meat or vegetables, price £6 6s.; a machine for cutting turnips, &c., for feeding poultry, into the size of barley, price £2 5s.; a machine for cutting or mincing meat or vegetables, price £1 10s. and upwards; a machine for cutting cooked food for invalids, and keeping warm the while, price £2; a small machine for cutting food for invalids, price £1 5s., all invented, improved, and manufactured by the exhibiter; and a machine for punching 1-8th inch holes in iron, or for cutting iron, price £10, invented, improved, and manufactured by J. Hunt and Co., of Oldford Bow.

Michael Penistan, of Lincoln.

A seven-horse portable thrashing engine, price £175; and a portable thrashing, shaking, and riddling machine, price £100, invented, improved, and manufactured by the exhibiter.

John M. Jones, of Clevedon (The Rock House), near Bristol, Somersetshire.

(New implement) a steam cultivator, named the "Jonian Plough," price £105, invented by the exhibiter, and manufactured by Messrs. Clayton, Shuttleworth, and Co., of Lincoln.

Thomas Milford and Sons, of Thoverton, near Collumpton, Devonshire.

An improved plank side one-horse cart for general purposes, price £15, invented by Frank P. Milford, of Thorverton, improved and manufactured by the exhibiters, (was awarded the prize of £3 by the Bath and West of England Agricultural Society, 1856, a prize of £2 by the same Society at Newton, 1857, and a prize of £2 by the Royal Agricultural Society at Salisbury 1857); (new implement) an improved cranked axle one-horse cart for general purposes, price £21, (awarded a prize of £4 by the Royal Agricultural Society at Salisbury 1857); (new implement) an improved plank side two-horse waggon for general purposes, price £26 (awarded the prize of the Bath and West of England Society in 1852, 1853, 1854, 1855, and 1857, and the prize of £2 by the Royal Agricultural Society at Salisbury 1857); and (new implement) an improved plank side three or four horse waggon for general purposes, price £35, invented, improved, and manufactured by the exhibiters.

Picksley, Sims, and Co., of Bedford Foundry, Leigh, near Manchester, Lancashire.

Eight different sizes and specimens of chaff-cutting machines, price £2 12s. 6d. and upwards to £15; a registered bean, oat, and linseed mill, price £4 15s. and upwards; an improved horse gear, with intermediate motion, price £18; and an 18-inch field roller, price £10, invented and manufactured by the exhibiters; an improved lawn-mowing machine 22 in., price £6, invented by E. Budding, manufactured by the exhibiters; an improved wringing and mangling machine, price £4 and £5 5s., invented and manufactured by the exhibiters; a set of poultry pots, price 18s., manufactured by the exhibiters; (new implement) an improved turnip slicer, price £4 10s., invented and manufactured by the exhibiters; a pair of carriage gates, price £14, manufactured by the exhibiters; a set of stable fittings, price £3 5s., invented and manfactured by the exhibiters; a length of stable gutter, with stench trap, price 5s. per yard; stench trap 3s., and a garden chair, price £1 1s. and upwards, manufactured by the exhibiters.

Charles Powell, of Ticehurst, near Hurstgreen, Sussex.

A patent wheat planter, suited also for mangold and barley, price £3 3s.; and a patent bean planter, suited for wheat, mangold, barley, &c., price £3 10s., extra slides and fittings 6s., invented by "Sigma," and manufactured by the exhibiter; a set of draw-shave hoes, price 17s. 6d. and £1 14s. 6d., invented by "Sigma"; and specimen of Major Quentin's giant wheat; specimen of the Prince Consort's early prolific kidney potatoes, price 10s. per bushel; a sample of insect or aphis powder, for the destruction of the green-fly on hops and other plants, price 2s. per wine-bottle; (new implement) a horse cultivator and strike plough, price £4 10s., invented and manufactured by the exhibiter.

Ruston, Proctor, and Co., of Sheaf Iron Works, Lincolnshire.

An eight-horse power portable steam engine, price £200: a patent portable combined thrashing, bolting, shaking, winnowing, and dressing machine, price £115; an improved portable grinding mill for farm purposes, price £44; and an improved portable sawing bench, price £40, improved and manufactured by the exhibiters.

Robert Romaine, of Canada, now at 8, Millman Street, Bedford Row, London, W.C.

(New implement) a Romaine's steam cultivator, price £600, invented by the exhibiter, and manufactured by W. H. Nash, engineer, Isle of Dogs, London; a model of the above, and a model of parts of the above.

Alfred Sparke, of Norwich, Norfolk.

A seven-horse power portable steam-engine, price £225; a a patent circular-saw bench with carriages and tramway, price £75; a circular-saw bench, price £22; an improved seed harrow, price £6 10s.; and an improved portable cloverseed drawing and dressing machine, price £35, invented, improved, and manufactured by the exhibiter.

JONATHAN STALKER, of Penrith, Cumberland.

A wheel plough, price £4 10s., and a two-horse swing plough, or prize swing plough, price £4 10s., improved and manufactured by the exhibiter; a light land swing plough, price £3 10s.; a double plough, price £4 (obtained eight prizes at the several country meetings in Cumberland, Westmoreland, and Lancashire in 1856 and 1857); a horse hoe, price £3 12s. 6d. (highly commended at the Society's Meeting at Salisbury, 1857); (new implement) a one-horse reverse plough, price £3 15s.; and a grubber for three horses, price £4 10s., invented, improved, and manufactured by the exhibiter.

TUXFORD AND SONS, of Boston and Skirbeck Iron Works, near Boston, Lincolnshire.

An eight-horse-power patent portable steam engine, with a vertical cylinder within a steam jacket, and an iron house enclosing the working parts of engine, under lock and key, price on wood travelling wheels £250, on iron ditto £245 (took the first prize at the meeting of the Royal Agricultural Society at Carlisle); a six-horse-power patent portable steam engine, with a vertical cylinder, within a steam jacket, and an iron-house which encloses the working parts of engine, price on wood travelling wheels £220, on iron ditto £215; a twelve-horse-power patent portable steam engine, with two vertical cylinders, within a steam jacket, price on wood travelling-wheels £355, on iron ditto £350; a six-horse-power improved portable steam engine, with horizontal cylinder, inclosed within a steam jacket, price £200; an eight-horse-power improved portable steam engine, with horizontal cylinder. inclosed within a steam jacket, price £230; a seven-horse-power improved portable engine boiler, with flues and tubes combined, felted and cased, price upon iron travelling wheels £115, upon wood ditto £120; a seven-horse-power patent portable steam steeple engine, in iron house, price £105; an eight-horse-power fixed steam engine, with vertical cylinder, upon a cast-iron sole plate, with handsome Doric frame, price without the expansive valve £200, with ditto £210; a six-horse-power fixed steam engine, with ditto, price £160; a patent combined thrashing, straw-shaking, riddling, winnowing, chaff-separating, and barley-awning machine, with elevators to sack the grain, price £90; and a patent combined thrashing, shaking, and dressing machine, with an extra dressing apparatus for finishing in one operation for market, price £110, all invented by Weston Tuxford, of Boston, and manufactured by the exhibiters; (new implement) an improved circular sawing machine for under-cutting, price with a 50-inch saw, and rails for cutting timber 30 feet long £65, invented and manufactured by F. Marston, of Hillhampton, Hereford; an improved circular-saw table, with parallel fence plate, and binding-rollers, or mechanical hand rails and horses, drag motion and drawing pulley, arranged to carry saws up to 42-inch diameter, and adapted for round or square timber deals, &c., price with a 30-inch saw £42; and (new implement) "Tuxford and Son's steam traction engine," with Boydell's endless railway, known also as the walking engine and as the steam horse, price 20-horse power £650, 24-horse £780, 28-horse £900, 32-horse £1,020, invented by Weston Tuxford, of Boston, and manufactured by the exhibiters.

WILLIAM WALKER, of East Bridgford, near Ratcliffe, Nottinghamshire.

A thirteen row corn, turnip, or mangold wurzel drill, with steerage, iron side, and screw gearing, price 37*l.* 12s. 6d. invented, improved, and manufactured by the exhibiter; a seven-row horse hoe, for hoeing wheat, beans, turnips, and other crops, with swing steerage, price 6*l.* 6s., improved and manufactured by the exhibiter.

WILLIAMSON BROTHERS, of Canal Iron Works, Kendal, Westmoreland.

A three horse power portable steam engine, price 120*l.*; a three horse power fixed steam engine, price engine and boiler complete, 50*l.*; an improved three horse power portable combined thrashing, shaking, and winnowing machine, price 40*l.*; an improved four horse power, fixed thrashing, straking, and winnowing machine, price 57*l.*; a four horse gear work, price 22*l.*; a two horse power thrashing machine, price 28*l.*; an improved straw shaker, price 5*l.*; and a two horse gear work, price 16*l.*, invented, improved, and manufactured by the exhibiters; a roller mill price 90s., larger size 7*l.* 10s., invented by Turner and Hurgood, of Ipswich, improved and manufactured by the exhibiters; an improved oilcake mill, price 65s.; and a turnip slicer, price 30s., invented, improved, and manufactured by the exhibiters; an improved barrel churn, price 70s.; (new implement) a patent vortex turbine of seven horse power, price 48*l.*; and (new implement) a model of the patent vortex turbine, price 10*l*, invented by James Thompson, improved and manufactured by the exhibiters; a patent short barrel cast iron lift and force pump, price 63s., manufactured by John Warner and Sons, of London; a cheese press, price 50s.; a portable mangle, price 65s.; a washing, wringing, and mangling machine, price 5*l.* 10s.; and a web, or brush harrow, price 70s., invented, improved, and manufactured by the exhibiters; and a wrought iron sack truck, price 12s., manufactured by the exhibiters.

SAMUEL ROWSELL, of Buckland St. Mary, near Chard, Somersetshire.

An American iron-pointed horse rake, for gathering hay, price 28s. (the judges of the West of England Agricultural Society awarded four special prizes at their show at Bath, 1854, 20s., at Tiverton, 1855, 10s., at Yeovil, 1856, 20s., and Newton Abbott, Devon, 1857, 10s., and the Royal Agricultural Society of England awarded a silver medal at Salisbury, 1857); and a Rowell's American iron-pointed horse rake, for gathering hay and raking corn, price with ash teeth 40s., lancewood teeth 50s., invented, improved, and manufactured by the exhibiter; and a field gate, price 22s., invented by Mr. R. Pym, of Buckland St. Mary, and manufactured by the exhibiter (obtained the West of England Society's prize of 20s. at Yeovil, 1856.)

JAMES WOODS AND SON, of The Suffolk Iron Works, Stowmarket, Suffolk.

An improved grinding and crushing roller mill, price 13*l.* 13s.: a roller crushing mill, price 11*l.* 11s., a smaller size 7*l.* 15s.; a universal mill for crushing oats, linseed, malt, barley, &c., also to grind beans and peas, price 10*l.* 10s.; an improved crushing roller mill, price 90s.: and a universal mill for grinding and crushing, price 5*l.* 15s., invented, improved, and manufactured by the exhibiters: (new implement) a new patent self-delivery reaping machine, price 36*l.* 10s., invented by William Harwood, Esq., of Mendlesham, and manufactured by the exhibiters: a patent root mincer and pulper, price 5*l.* 10s., a larger size 9*l.* 9s., invented by Frederick Phillips, of Brandon, improved and manufactured by the exhibiters, (was awarded the prize at Lincoln, 1854, and Carlisle, 1855): three sizes of (new implement) a new patent chaff cutter (marked No. 1), price 97s. 6d. £8. and £11 11s., invented and manufactured by Edwin Palmer: a single-action Gardner's turnip cutter, price 90s., invented by James Gardner, of Banbury, improved and manufactured by the exhibiters: a double-action ditto, price £5 10s.: a turnip chopper for hand, price 27s. 6d.: a two horse thrashing machine, price £32: a pair of wheels and axletree, price £5: a one horse power for driving chaff engines, crushing mills, &c., price £13 13s.: and a two horse power, price £16 16s., invented, improved, and manufactured by the exhibiters: a Phillips's patent poppy and weed extirpator and fertilizing lever harrow, price £9 9s., invented by Frederick Phillips, of Brandon, improved and manufactured by the exhibiters (was awarded a silver medal by the Royal Agricultural Society of England at Chelmsford): a set of horse rake teeth, price 63s., invented, improved, and manufactured by the exhibiters: a patent horse rake, price £8 10s., invented, improved, and manufactured by J. and F. Howard, of Bedford: a set of extirpator (Phillip's patent) teeth, price 82s., invented by Frederick Phillips, of Brandon, improved and manufactured by the exhibiters: an improved one horse Suffolk cart, price £13 10s. (was awarded the first prize at the Salisbury meeting, 1857): a set of harvest frames, price 40s.: a pair of wheels and axles, price £8 15s., larger size £9 5s., invented, improved, and manufactured by the exhibiters: a Hall's patent cabinet mangle, price £6 10s., invented by John Halls of Bildestow, improved and manufactured by the exhibiters: an asphalting apparatus, for laying asphalte flooring, paths, &c., price £17; specimes of asphalte flooring; and a portable corn grinding mill, price £49, invented, improved, and manufactured by the exhibiters: (new implement) a three horse improved portable steam engine, price £95, invented, improved, and manufactured by the exhibiters: and a Cornes's chaff cutter (marked No. 2), price £10 10s., invented by J. Cornes, improved, and manufactured by the exhibiters.

JAMES COULTAS, JUN., of Spittalgate, near Grantham, Lincolnshire.

A combined corn dressing machine and blower, price 11l. 11s., (new implement) a corn blower or dresser, price 7l., a blower, price 5l., a general purpose drill, price 37l. (obtained the following prizes: 4l. at Market Rasen in July 1856, 5l. at Rotherham in August 1856, 5l. at Louth in July 1857, 5l. at York in August 1857), a ten row corn and seed drill, price 29l. 10s., and an eight row corn and seed drill, price 22l. 10s, invented, improved and manufactured by the exhibiter

WILLIAM M. CRANSTONE, of 11, New Broad Street, London.

A reaping and mowing machine, price 35l., invented by John H. Manny, of Rockford, Illinois, United States of America, improved and manufactured by Walter A. Woods, of Hoosick Falls, State of New York, price £35.

WILLIAM CULLINGFORD, of 1, Edmund Terrace, Ball's-pond, London.

A sheepfolding net, 4 feet wide, 7 inch mesh, price 6d. per running yard; a lambfolding net, 4 feet wide 3½ inch mesh, price 6d. per running yard; a tarred hemp sheepfolding net, 4 feet wide, price 6d. per running yard; a tarred hemp lambfolding net, 3½ feet wide, 3½ inch mesh, price 9d. per running yard; rabbit nets, 4, 6, or 8 feet deep, price 2d., 3d., and 4d. per running yard; hare or rabbit nets, 6 feet wide, 100 yards long, price 1l. 15s. fixed; batfolding nets for birdcatching, fixed upon socketed bamboo poles, price 1l. 5s., without poles 10s. each; clap nets for birdcatching, price 1l. 10s. complete, bird traps, price 10s. each; fishing nets, various, prices, casting nets, 18 yards round, 27s., drag net, 20 yards 9 feet deep, extra stout, 3l. 10s.; flue net, 20 yards long, 6 feet deep, 1 inch mesh, 2l. 10s.; a wire net, prices, 2 feet wide, 2 inch mesh, 5d.; 3 feet wide, 4 inch mesh, stout, galvanized, for sheepfolding, 9d. per running yard.

PHILIP JOHNSTON, of 290, Oxford Street, London.

Twenty-one sizes and specimens of a butter churn, price 15s. and upwards to 2l. 10s. 6d., a butter churn and stand, price 2l. 16s. 6d., a butter churn and stand complete, price 3l. 11s., and a butter churn with flywheel and stand complete, price 4l. 1s. 6d, invented and manufactured by the exhibiter.

DAVID DUNNE KYLE, of Victoria Street, Westminster.

(New implement) a steam cultivator, price 200l. exclusive of steam engine, invented and improved by the exhibiter.

ROBERT LAW, of Shettleston, Glasgow, Lanarkshire.

A plough for general purposes, price 4l. 5s., invented by Wilkie, of Uddingston, and improved and manufactured by the exhibiter; a set of harrows for general purposes, price 3l. 15., invented and manufactured by the exhibiter; a two-horse grubber for cleaning and pulverizing the soil, price 7l. 7s., invented by Tennent, Shields, Ayrshire, and improved and manufactured by the exhibiter; a drill grubber for cleaning and pulverizing drill crops, price 3l., invented and manufactured by the exhibiter; a farm cart with moveable sideboards, for light commodities, as also harvest frame with iron standards, price 15l. The above are the prices to be delivered in Glasgow.

JOHN PATTERSON AND CO., of Beverley, Yorkshire.

Three sizes of (new implement) a compound action mill for horse power, price 15l., 20l., and 53l., (new implement) a compound action bonedust mill, 6 horse, price 50l., (new implement) a Yorkshire churn, price 4l., and (new implement) a Yorkshire clothes washing machine, price 3l. 10s., invented and manufactured by the exhibiters.

THOMAS READ and CO, of 4, Agar-street, Strand, London.

Specimens of sign painting; writing and gilding; writing for signs, show-boards, &c.; writing, enamelling, and embossing on glass for shop fronts; ornamental and plain writing, suitable for prize tablets; and writing on card-boards, suitable for exhibiters.

THOMAS SCOTT, of Drummond-street, Euston-square, London.

(New implement) three sizes of a screen or separator for grass seeds, price £9 9s., £15 15s., and £25; (new implement) a grass seed dressing and cleaning machine, price £28; and (new implement) a carrot seed bearding and dressing machine, price £30, all invented and manufactured under the directions of the exhibiter.

ARTHUR SILCOCK, of Chippenham, Wiltshire.

(New implement) an oilcake crusher or breaker, price £5, larger size for horse or steam power, with pulley, £8 10s.; (new implement) a single spring cheese press, price £3, and (new implement) a double spring ditto, price £5, invented and manufactured by the exhibiter; (new implement) a single cheese press with compound lever, price £3, and (new implement) a double cheese press with compound lever, price £5, improved and manufactured by the exhibiter; (new implement) a single governor cheese press, price £3, and (new implement) a double governor cheese press, price £5, invented and manufactured by the exhibiter; and a hay-making machine, price £15, invented, improved, and manufactured by the exhibiter.

EDWARD WEIR, of 296, Euston-road, London, N.W.

An irrigator liquid manure pump, fire, and garden engine, price £7 7s.; and a hose pipe reel, price £6 10s., invented and manufactured by the exhibiter; samples of patent woven hose pipe for liquid manure or water, price, ½in. pipe 9d. and upwards, 3in. diam. 2s. 9d. per yard, manufactured by Waithman, of Lancashire; a set of apparatus for liquid manure or water cart, price £2 2s.; a spirit draining level, price £1 10s.; and a workman's pendulum draining level, price 15s., invented and manufactured by the exhibiter.

PETER ALEXANDER HALKETT, of Dunford Farm, Wandsworth, Surrey, and Windham Club, St. James's-square, London.

(New implements) Models and plans of the implements required in the steam guideway system of culture, comprising wheels and axles; farm, with guideways and steam carriages; truck for steam cultivation; truck for carriage of crops, manure, marl, clay, &c.; watering apparatus; arc for a plough; subsoiler; drill; hoe; model and hoes; ecimens of wooden angle rail covered with iron upon posts and wooden rails upon sleepers; specimens of rails, brick tramway, a flat wooden rail, and a flat rail with iron surface; grubbers and harrow tines; crank connecting rod; part of the machinery of the comminutor, and plans and part of the comminutor belonging to the guideway; steam cultivator, all invented and manufactured by the exhibiter; (new implement) a plough, part of the machinery of the Wandsworth steam cultivator, price £600; and a sample of corn cut by steam reaper, and plans, invented and manufactured by the exhibiter; (new implement) a locomotive steam cultivator for Halkett's patent guideway steam culture, suitable to the purposes of horticulture, or the light operations of a farm, price £115, invented by H. Grafton, of 80, Chancery-lane, London, and manufactured by the exhibiter; (new implement) a box containing some of the comminuted soil, plans of comminutor, &c., invented and manufactured by the exhibiter.

NOAH WEST, of 7, Blandford-street, Portman-square, London.

(New implement) a union mowing and reaping machine, price £20 and upwards, invented and manufactured by the exhibiter.

JOHN WHITMEE and CO., of 11, Ray-street, Clerkenwell, London, E.C.

Several specimens and sizes of a corn crusher, price £4 and upwards to £20; several sizes of a chaff cutting machine, price £2 15s. and upwards to £17; three sizes of a grinding mill, price £5, £15, and £23; a steel mill for grinding wheaten flour, price £4 10s.; three sizes of a mill for grinding and dressing wheaten flour, price £6 10s., £9, and £15; five sizes of a coffee mill, price 14s. and upwards to 25s.; three sizes of a sausage machine, price 30s., 50s., and 80s.; a colour mill, price 70s.; a washing machine, price 70s., larger size 90s., all invented, improved, and manufactured by the exhibiter; and a cask of Braden's cattle food, price 42s., invented and manufactured by Braden, of London.

William Wright, of Saltney, near Chester.

A general purpose cart, price 15*l*., invented and manufactured by the exhibiter.

Humphrey Chamberlain, of Kempsey, near Worcester.

A patent portable brick making machine, price 140*l*., invented by the exhibiter, and manufactured by John Jackson, of Worcester; a patent brick machine, price 250*l*., and a clay grinding mill, price 60*l*., invented and manufactured by Messrs. Bradley and Craven, of Wakefield.

Thomas Gibbs and Co., the Seedsmen to the Royal Agricultural Society of England, of Halfmoon-street, Piccadilly, London.

A collection of dried specimens of permanent grasses; a collection of specimens of English wheats, barleys, oats, &c., &c., in the ear; a collection of dried specimens of foreign wheats, barleys, oats, &c., in the ear, and of English varieties grown from seed imported from France after the kinds had been acclimatized there for some years; a collection of samples of various permanent and other grass seeds; a collection of general agricultural and other seeds, including carrots, parsnips, mangel wurzels, swedes, hybrids, and other turnips, clovers, sainfoin, lucerne, peas, beans, and other agricultural seeds; and a collection of roots of yellow or orange globe, ong red, and other mangel wurzels.

Henry Bridges, of 406, Oxford-street, London, W.

A large variety of new patterns of improved butter prints and other small articles, for dairy use, price from 6d. to 10s., manufactured by the exhibiter.

James Tree and Co., of 22, Charlotte-street, Blackfriars Road, Surrey.

A cattle gauge and key to the weighing machine, price 7s. 6d. to 16s. 6d. each; a cattle gauge, adapted for any market, price with book of instructions from 8s. 6d. to £1 5s. each; a farmer's slide-rule and cattle gauge, price from 12s. 6d. to £1 5s. each; and a circular cattle gauge, price £1 5s., all invented by John Ewart, Esq., of Newcastle-on-Tyne, and manufactured by the exhibiters; a beam draining level, price £4, invented by Wm. Bullock Webster Esq., of Neath, and manufactured by the exhibiters; (new implement) a telescope draining level, price £5 5s., invented and manufactured by the exhibiters; a cottage or agricultural barometer, price 11s. 6d.; a garden minimum thermometer, price 4s. 6d. each; a garden maximum thermometer, price 6s. 6d.; and a garden microscope, price £1 1s. each, improved and manufactured by L. Casella, of London.

George Bruce, of 54, Nelson-street, Liverpool.

A specimen of black japan varnish, price 5s. per gallon; blue coloured composition, price 15s. 6d. per gallon; red coloured composition, price 15s. 6d. per gallon; green coloured composition, price 15s. 6d. per gallon; stone coloured composition, price 15s. per gallon; transparent varnish, price 7s. per gallon; and white colourless varnish, price 15s. 6d. per gallon, all invented, improved, and manufactured by the exhibiter.

Sugden and Marriott, of Huddersfield, Yorkshire.

A case of the patent mineral manures, root manure, grain and grass ditto, or patent sulphate of ammonia, price £8 per ton, manufactured by the exhibiters.

Joseph Thorley, of 77, Newgate-street, London.

A case of Thorley's food for cattle, containing 448 packages, each package one feed, price 56s., invented and manufactured by the exhibiter.

George H. Bolton & Co., of Warrington, Lancashire.

The palatine horse food, price: box containing 120 feeds in packets, 19s; the palatine cattle and swine fattening food, price: box containing 120 feeds in packets, 14s. 9d., carriage paid: the palatine concentrated fertilizer, price: cask containing sufficient for 12 tons of manure, 30s., carriage free—all invented and manufactured by the exhibiters.

John Knight & Co. (the Lancashire Manure Company), of Widnes, near Warrington, Lancashire.

Samples of "nitrogenized bone manure" for wheat, barley, oats, rye, beans, peas, vetches, grass, clover, turnips, mangel wurzel, and potatoes, price £8 15s. per ton, invented, improved, and manufactured by the exhibiters; a sample of superphosphate or vitriolized bones, price £7 10s. per ton; a collection of samples of nitrate of soda, sulphate of ammonia, sulphate of potash, sulphate of soda, sulphate of magnesia, animal charcoal, bone ash, raw ground bones, and a collection of samples of roots, grain, vegetables, and other field and garden produce grown by the application of the "Nitrogenized Bone Manure" on various estates in Lancashire and Cheshire.

Bowers Brothers, of Chester.

Bower's alterative or condition balls, cordial balls, diuretic balls, cough balls, and physic balls for horses, prices various from 6d. each, or 6s. per dozen; Bower's black or sweating oils, for sprains and bruises, 1s. per bottle; Bowers's white oils, 1s. per bottle; Bowers's horse blister ointment, 6d. and 1s. per pot; Bowers's alterative powder, for improving the coat, 1s. per lb.; James's horse blister, 1s. 6d. and 2s. 9d. per pot; Cupis's horse balls, 3s. 6d. per packet; Woolrich's horse balls, 3s. 6d. per packet; Stephens's ointment, a substitute for firing, 2s. 6d. per pot; Bowers's husk or cough drink, cleansing drink, heartening drink, and purgative drink, 10d. each, or 8s. per dozen; Bolton's cattle cure, for lung distemper, 2s. 6d. per bottle; Cuff's farmers' friend, 1s. 8d. per bottle; castor oil, in pint bottles, £1 4s. per dozen; Epsom salts, 6d. per lb.; pure linseed oil, in pint bottles, 8s. per dozen; glauber, or cattle salts, 3d. per lb.; a butyr of antimony, 1s. 4d. per lb.; Bigg's sheep-dipping composition, 20-inch keg for 100 sheep, 10s.; Bigg's specific for scab, 1s. 3d. per quart; Bigg's foot-rot lotion, 1s. per bottle; Bigg's apparatus for dipping sheep, £5; Bolton's palatine food, 60 feeds 9s. 9d.; Bolton's palatine milk food, and cattle and swine fattening food, 60 feeds, 7s. 6d. each; Bolton's palatine concentrated fertilizer, 30s. per cask of 2½ cwt.; Butler's vermin killer, and Green's vermin killer, each 3d., 6d., and 1s. per packet; Down's farmers' friend, 10d. per packet; Sturge's preparation for protecting the turnip plant from the fly, 2s. per packet, sufficient for 6lbs. of seed; Propert's paste, for hunting appointments, 2s. 6d. per pot; Fullwood's annatto, 5s. per lb.; Freeman's liquid annatto, 5s. 6d. per quart bottle; black antimony, 1s. per lb.; blue vitriol for dressing wheat, 4d. per lb; engine or machinery oil, 4s. 8d. per gallon; sweet oil, 4s. 4d. per gallon; genuine neat's-foot oil, 8s. per gallon; linseed for feeding cattle, and linseed meal for feeding cattle, at market price; Irish moss for feeding cattle, 13s. per cwt.; harness blacking, 1s. per bottle; ginger powder, 1s. per lb.; flowers of sulphur, 4d. per lb.; nitrate of soda for manure, at market price; patent tar for farm buildings, 1s. 4d. per gallon; Stockholm tar, 3d. per lb.; rectified naphtha for singeing, 4s. per gallon; sulphuric acid for dissolving bones, 10s. per cwt.; spirits of tar, 3s. 4d. per gallon; tobacco water, 1s. 2d. per gallon; and waggon grease, £1 12s. per cwt.

Isaac Wright, of Great Bentley, Colchester, Essex.

Seeds, roots, and grass specimens.

Peter Lawson & Son, of Edinburgh, and 27, Great George-steeet, Westminster.

Seeds, roots, &c.

Henry Bradley, of 35, Parliament-street, London.

A cask, and a case of meal, called "Bradley's genuine horse and cattle food," prices £2 2s. and £2 10s.; and cask ditto pig food, price £1 4s., each invented and manufactured by the exhibiter.

Down & Co., of Woburn, Bedfordshire.

A case of dressing, for seed wheat, price £1 10s., invented by Henry Down, and manufactured by the exhibiters.

Spooner Manning & Co., of Earlestown, near Warrington, Lancashire.

A horse and cattle food, price, horse food, £2 2s. per cwt.; and the Lancashire condensed pig food, price £1 4s. per cwt., both invented by Spooner Manning, and manufactured by the exhibiters.

William Bullock Webster, of 8, Adam-street, Adelphi, London.

(New implement) to show the new mode of making better, simply by the introduction of air, invented by the exhibiter.

ROYAL AGRICULTURAL SOCIETY OF ENGLAND.

A MONTHLY COUNCIL was held on Wednesday, the 4th of August: present, His Grace the Duke of Marlborough, President, in the Chair; Lord Walsingham; Sir Archibald Keppel Macdonald, Bart.; Sir Edward Kerrison, Bart., M.P.; Hon. William George Cavendish, M.P.; Mr. Raymond Barker; Mr. Barnett; Mr. Caldwell; Colonel Challoner; Mr Druce, Mr. Exall; Mr. Brandreth Gibbs; Mr. Hamond; Mr. Fisher Hobbs; Mr. Wren Hoskyns; Mr. Howard; Mr. Lawrence; Mr. Milward; Mr. Paget, M.P.; Prof. Simonds; Mr. Robert Smith; Mr. Jonas Webb; Mr. Burch Western, and Mr. Wilson (of Stowlangtoft).

William John Legh, Esq., of Lyme Park, Cheshire, was elected a Governor of the Society.

The following new members were elected:

Cartwright, Colonel, Kineton, Warwickshire.
Gates, Captain, Whalley Abbey, Clitheroe, Lancashire.
Leonard, Rev. Francis Barford, Brook House, Penhow, Monmouthshire.
Morley, John, Effingham-hill, Leatherhead, Surrey.
Oakes, Harvey Asten, Stowmarket, Suffolk.
Wallis, Edward, Wandsworth, Surrey.

FINANCES.—Mr. Raymond Barker, Chairman of the Finance Committee, presented the monthly report on the accounts of the Society, from which it appeared that the current cash-balance in the hands of Messrs. Drummond was £1,897.

DRAINAGE.—Lord Walsingham reported from the Drainage Queries' Committee their recommendation that the replies received from Members of Council to the queries transmitted to the Society by the Board of Trade should be forwarded to that department by the Secretary.

STEAM CULTIVATION.—Sir Archibald Keppel Macdonald, Bart., Senior Steward of Implements at the Chester Meeting, submitted to the Council the following report from the judges of steam cultivators:—

REPORT ON STEAM PLOUGH OR CULTIVATOR TRIALS.

There were five competitors for the prize of 500*l.* offered by the Society for "the Steam Cultivator that shall in the most efficient manner turn over the soil, and be an economical substitute for the plough or the spade."

C. Burrell, of Thetford, sent the Patent Locomotive Traction Engine or Steam Horse, invented by James Boydell, of London, and manufactured by the exhibiter.

Wm. Crowley and Sons, of Newport Pagnell, entered a set of Ploughs, invented, improved, and manufactured by themselves; consisting of three ploughs each way, connected together so as to work at one uniform depth over uneven surfaces, with an apparatus for expanding or contracting them to bring them on to new ground.

Thomas Ricketts, of Buckingham, sent his Patent Rotary Steam Cultivator, consisting of a 10-horse-power locomotive engine with a horizontal shaft behind, driven by pitch chains and revolving in radial links in the direction contrary to that in which the wheels are travelling. On this shaft are placed tines, spades, or cutters of other forms, which enter the soil at the bottom of the furrow, cut upwards, and either break up or invert as required.

J. and F. Howard, of Bedford, sent a set of Smith's Patent Apparatus for cultivating land by steam power, invented by Wm. Smith, of Woolston, and manufactured by themselves. This consists of an ordinary 8-horse portable steam engine, with windlass, leather driving band, wireropes, pulleys, turning bow, ploughs, and cultivators, all complete for work.

And, lastly, J. Fowler, jun., of Cornhill, sent his steam plough, consisting of an ordinary 10-horse engine with windlass to attach and detach, and anchor, with four-furrow balance plough frame, with scarifier tines to take the place of the plough mould-board. The trials were commenced on July 13th, in a field of two-year-old seeds, the soil a light sandy loam, upon a subsoil of silt or sand; the land having been reclaimed originally from the bed of the river Dee. The soil, though naturally of a very light description, offered considerable resistance owing to its surface being firmly bound together by a luxuriant growth of couch and other grasses, and represented a fair trial ground for two-horse work. Indeed a dynamometrical experiment with one of Howard's PL ploughs, drawn by two horses, and taking a 6 by 10-inch furrow, showed that the resistance offered was equal to 32 stones, or 4 cwts.

From various causes the arrangements for working Boydell's engine were not completed in the time appointed for the trials, and although it subsequently was at work, exhibiting its great traction powers, both with Coleman's cultivator and Williams' frame of ploughs attached, we are not able, for the above reason, to give any report upon its work or comparative merits.

The set of ploughs entered for trial by Crowley and Sons was unprovided with any motive power, which had to be supplied by Fowler's engine. This fact alone placed them beyond the boundaries of the competition; the principal element of which was the power, and not the mere tool or implement by which the work was to be performed. On trial, however, the set of ploughs got deranged, and was at once withdrawn.

The rotary steam cultivator of Ricketts, although unsuccessful, demands more than a passing notice, as it contains many points well worthy of consideration, especially by those who think a locomotive preferable to a fixed traction power, and a rotary to a horizontal rectilinear motion. The engine was of the ordinary locomotive construction, with double cylinders and reducing gear-work for driving one of the carrying wheels. It was steered by the fore-carriage, and three men were required when at work in the field. The principle of action in this cultivator is a horizontal transverse shaft, driven by an endless pitch chain from a pinion on the crank shaft, attached to the hind part of the engine, and revolving in radial links at a small elevation above the ground. The axis of this transverse shaft (on which several different forms of cutters were fixed according to the nature of the work required) is parallel to that of the engine wheels, but a contrary motion is given to it, so that the cut or passage of the implement through the soil is with the direction of the engine's progressive motion.

By this arangement the cutters enter the soil or furrow from below, and working upwards to the surface, carry with them the separated pieces, and drop them, as their revolution is continued, in an inverted position. This is a new principle of action in rotary cultivation: it substitutes a tearing for a compressing force in dividing the soil, and completes the inversion of the separated pieces by moving through half a revolution (or an angle of 180 degs.) instead of three-quarters of a revolution (or an angle of 270 degs.), which is required by the ordinary mode of applying rotating cultivators.

A considerable saving of power is effected, especially in strong and stony soils, and the soil itself is left in a more open and desirable state. The shaft can be elevated or lowered to suit any depth of cultivation required, and the length of the cut or furrow slice can be varied by change wheels on the crank and intermediate shafts.

The field appointed for the trials was laid up in narrow lands, varying from 7 to 10 feet wide, with a difference of level of some 10 or 12 inches between the ridge and the furrow, and thus afforded no fair test of the powers of this rotary cultivator; as, owing to the great breadth of its cut (seven feet), in no part could it find space sufficiently level to show its work to advantage. Enough work, however, was done to establish its capabilities, to indicate several points in its working details which might be readily improved, and to show that the principle of rotary cultivation had taken a distinct position as a desirable and valuable addition to the mechanics of agriculture.

We think Mr. Ricketts deserves great commendation for the skill and ingenuity displayed in the design and arrangement of the rough trial machine exhibited. The working details may be thus given:—While in motion on suitable ground the machine advances about 20 feet per minute, the shaft making 75 revolutions, and the tines or cutters attached taking a slice 4½ inches wide by 6 inches deep, and 7 feet in breadth. At this rate 91½ poles per hour, or about 5¾ acres per day, would be performed. The working expenses per day may be taken at £1 15s. 9d.; this, taking 4 acres as the average work done per day, would give about 9s. per acre as the cost of cultivation. Owing to the breaking of the chain driving the transverse shaft, the work was brought to a close during the first day, and the machine withdrawn from further competition.

Two competitors now only remained for our attention, Messrs. Fowler and Howard, both of whose machines and working arrangements are too well known to need any description here. It would be right however to observe that Mr. Fowler's have been considerably simplified and improved since the last annual meeting of the Society; and that a very important diminution has been effected both in the traction power required and in the wear and tear from friction. The engine too and the windlass and anchor pulley are now self-moving, and travel through any field, however large it may be, after being once fixed, without any assistance whatever.

In testing the comparative merits of these two machines, we thought it best to direct our attention to:—

1st. The cost of working per day of each.

2ndly. The quantity and description of work done.

3rdly. The practical or agricultural value of that work.

The trials were commenced in the field (light land) already described, and were continued the following days in a field on Blacon Farm, where the soil was a strong tenacious loam in a very dry and indurated condition, and matted together on the surface by a strong growth of Thistles and Grasses.

An experimental trial with a Wilkie plough (swing) gave a dynamometrical result of 51 stones, or 6⅜ cwt., as the traction power required to turn a 6 × 9 furrow, thus showing it to be fully equal to a strong three-horse soil. The trials comprised ploughs on the light land, and ploughing and trenching with Cotgreave's ploughs on the strong land by Fowler's machine; while Howard exhibited Smith's system of cultivation by means of his spud-tined cultivator, and his subsoiling and trenching plough.

The daily working expenses of Fowler's machine we estimate as follows:

	£	s.	d.
Engineer	0	5	0
Plough and anchor men	0	6	0
Two boys	0	2	0
Water cart	0	5	0
Coals, 10 cwt.	0	10	0
Oil, &c.	0	1	0
Removal	0	4	0
Interest at 5 per cent., and wear and tear at 15 per cent, on first cost (650*l.*), assuming 200 as the number of working days in the year ...	0	13	0
	£2	6	0

On the light land the work was performed, including stoppages, at the rate of 7¾ acres per day of 10 hours. The actual rate of travelling, while the ploughs were in full swing, was 3.83ft. per second, which gives about 1.031 acres per hour, the soil moved (four ploughs) being 3 feet 4 inches wide by 6 inches deep.

On the heavy land, 4 acres 3 roods 12 poles were ploughed in 9 hours 39 minutes, equal to 5 acres per day of 10 hours, the same-sized furrows being taken. With Cotgreave's trenching plough, the rate of work was of course greatly diminished. The furrow was 12 to 14 inches deep, while the width (two ploughs used) was 20 inches. About the same quantity of soil was removed as by the other ploughs;* but a little more power was consumed. The work done was just 40 poles per hour, or 2½ acres per day.

These results enable us to give the cost of ploughing, by Fowler's machine—

		s.	d.	
Of light land	at	6	0	per acre
according to the rate of work done in trials; or taking 6 acres per day as the average,	at	7	2	,,
Of heavy land	at	9	2	,,
Of trenching ditto	at	18	4	,,

Our estimate of the quality and value of the work thus performed is, that the light land could not have been done by horse power for less than 8s. per acre; that the heavy land could not have been ploughed by horse power for less than 12s. 6d. per acre; and that the trenching could not have been done by horse power at all; and that by manual labour with the spade and grafting tool it could not have been done for less than 10d. per pole, or £6 13s. 4d. per acre, and then only in a very inferior manner.

Smith's system of cultivation, as exhibited by Messrs. Howard, requires two operations: the first with a strong spud-tined cultivator, which penetrates the ground to a given depth (in this case 6 to 7 inches), and tears it up, leaving the surface more or less in its original position; while the second, with a similar implement of larger dimensions, travelling in a transverse direction and at the same depth, clears away any portions unmoved by the first, and reverses the whole of the top soil, exposing a rough irregular surface to the action of the atmosphere.

The principal trials took place on the heavy land at Blacon, when 4 acres 3 roods were gone over by the first operation with the smaller cultivator (3-tined, taking a breadth of 26 inches) in 10 hours 37 minutes. In the second operation (with the 5-tined cultivator, taking a breadth of 48 inches), 4 acres 3 roods 33 poles were finished in 4 hours 50 minutes, which inclusive of stoppages, &c., gave a result of work completed by the two operations of about 5 acres in 15 hours, or 3⅓ acres

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	Furrow-slice. Breadth. Inches.		Depth. Inches.
* By ploughs	40	by	6
Cotgreave	20	by	12

per day. The daily working expenses of this machine are—

	£	s.	d.
Engineer	0	5	0
Four men in field	0	10	0
Boy	0	1	0
Water-cart..	0	5	0
Removal	0	4	0
Coals, 10 cwt.	0	10	0
Oils, &c.	0	1	0
Interest 5 per cent, wear and tear 20 per cent. on first cost, £430; taking 200 as the number of working days per year	0	10	9
	£2	6	9

This shows that the work was done at a cost of 14s. per acre, while to effect a similar result with the ordinary implements and horse-power three distinct operations would be required, which could not be performed at less than 18s. 6d. per acre.

These money results, satisfactory though they be, are not, we consider, the only points of advantage which the introduction of these machines confers upon agriculture. By their aid we can carry out a complete system of autumnal cultivation now so generally admitted to be desirable, but which it is extremely difficult to effect with the ordinary force of a farm, in ordinary seasons, and under ordinary circumstances. We can continue our cultivation by ploughing or otherwise, well nigh regardless of weather, and upon land which would not submit to the pressure of horse labour. We have perfect control over the work we wish to have done; and when it is done, it is found to be more regular throughout, and to be in a more open and desirable condition than could be obtained by the best and most judicious application of the ordinary implements of a farm. These are points which we cannot too strongly recommend to the attention of those interested in the advancement of agriculture.

We wish it to be distinctly understood that throughout the trials we have charged the machines with the maximum of working expenses, and have credited them with the minimum value for the work performed. We feel confident that when in constant operation on a farm, the work done would be at a lower rate of cost than that now given, and their great advantages then more clearly and directly shown. At the same time, too, it must not be forgotten that the engines themselves are equally applicable to all the other power purposes of the farm.

From the foregoing results of the trials intrusted to our decision by the Council of the Royal Agricultural Society, and conducted throughout under our immediate supervision, it is beyond question that Mr. Fowler's machine is able to turn over the soil in an efficient manner at a saving, as compared with horse labour, of on light land 2½ to 25 per cent.; on heavy land, 25 to 30 per cent.; and in trenching, 80 to 85 per cent.; while the soil in all cases is left in a far more desirable condition, and better adapted for all the purposes of husbandry. We are therefore unanimously of opinion that he is fully entitled to the prize of £500, and we now give our award accordingly.

The results of the trials of Messrs. Howard's machine also prove that the soil can be inverted in an efficient manner, and at a less cost than by horse or manual labour. We think therefore that some acknowledgment of the merits of their machine is due from the Society, and we beg to recommend for the consideration of the Council that a large gold medal of honour be presented to Messrs. Howard, "for the practical introduction of Smith's application of steam power to facilitate autumnal cultivation, now generally admitted to be desirable on all descriptions of soils."

The Council will be gratified to learn that already 23 of these machines have have been sent out by the manufacturers, and that 20 of them are being successfully worked by tenant farmers.

Jno. Clarke, Long Sutton.
Joseph Druce, Eynsham, Oxon.
George Shackel, Earlsley Court, Reading.
John Wilson, Edinburgh.

Professor Wilson favoured the Council with his attendance, and replied to the various inquiries made of him by the members present on the several points of detail connected with the trials in question; for which, on the motion of Sir Archibald Macdonald, he received the best thanks of the Council.

On the motion of Sir Archibald Macdonald, seconded by Mr. Barnett, the report was then unanimously adopted and confirmed, and the Secretary instructed to communicate that result to Mr. Fowler and Mr. Howard.

Cattle. — Mr. Milward gave notice that at the November meeting he should be prepared to propose the adoption of alterations on some points connected with the show of next year.

Prize Essays.—Mr. Thompson, Chairman of the Journal Committee, transmitted the following schedule of prizes for essays and reports to be sent to the Secretary at 12, Hanover Square, London, on or before the 1st of March in next year.

	£.
Results of microscopic observation applied to the vegetable physiology of agriculture..........	50
Agriculture of the Islands of Jersey, Guernsey, Alderney, and Sark	25
Steam Cultivation...........................	25
Extent to which tillage operations act as a substitute for manure............................	20
Modifications of four-course rotation consequent upon modern improvements..................	20
Varieties of Wheat, Barley, and Oats best adapted for high farming	20
Causes of the increasing difficulties of Turnip cultivation, and the remedies	20
Comparative cost of high condition of land produced by purchased cattle food, or by purchased manure	20
Any other agricultural subject.................	10

Piracy.—The Council received from Mr. W. Jackson, Veterinary Surgeon, Doncaster, an apology for having reprinted and published as his own work, without authority, and without the slightest acknowledgment, an article from the Society's journal on Pleuro-pneumonia by Professor Simonds.

Warwick Meeting.—A letter having been read from Lord Berners, the Council decided that the General Warwick Committee should be appointed in November next, and that in the meantime Mr. Brandreth Gibbs and the Stewards of Implements should be requested to inspect the land for the trial of implements next year, and direct its being placed under suitable management for that purpose.

Miscellaneous Communications. — From the Royal Academy of Sciences at Lisbon, requesting to enter into relations with the Society.—From Mr. Ellison, Vice-President of the Sheffield, South Yorkshire, and North Derbyshire Agricultural Association, conveying the wishes of numerous parties in Sheffield that the Country Meeting of the Society should be held in that town.—From Mr. Kernaghan, on the price of guano.—From Mr. Wilson, on artificial manures.—Complaints from exhibitors at the Chester Meeting, in reference to charges levied on them by some of the

Railway officials.—From Mr. Beale Browne, a specimen of oil-cake.—From Mr. Durnford, of Cheshunt, Herts, a specimen of downy substance from the aspen, similar to cotton.—From Mr. J. H. Dickson, specimens of the grasses of Indian yarn and cloth.—From Mr. J. A. Williams, of Baydon, copies of his work on Steam Cultivation.—From Mr. Smith, of Woolston, a copy of his "challenge" for steam-ploughing. — From Mr. Fisken, claim to priority of invention in steam-ploughing.—From Mr. Burcham, on conditions under which only the prize should be awarded for steam-ploughing, and a suggestion that its amount should be raised from £500 to £1,000.—From Mr. Corrigan, a copy of his work on the theory and practice of modern agriculture. —From the Rev. William Townsend, Rector of Aghadda, near Cloyne, a work illustrating the practical value of Fiorine or Agrostis stolonifera.—From the Foreign Office a German work, from H.M. Consul at Stettin, on animals of the greatest use to agriculturists for the destruction of noxious vermin, written by Dr. Gloger.—From M. Joseph Gautherot (the "Hydroscope"), of 34, Frith-street, Soho, copies of a pamphlet containing references to his discovery of subterranean springs of water in France and Algeria, and a letter to the President, in which he offers his immediate professional services to the owners and occupiers of land in England for ascertaining the existence of hidden supplies of water.—From Mr. Westbroke Baker, of Cottesmore, the 26th annual report of the Rutland General Friendly Institution.—From Mr. James Chapman, a copy of plans for Farm Buildings, published by direction of the Duke of Leinster.

The Council (having ordered the usual vacations for the Secretary and the clerks of the Society) adjourned over the autumn recess to Wednesday, the 3rd of November.

NORTHUMBERLAND AGRICULTURAL SOCIETY.

THE ANNUAL MEETING AT HEXHAM.

On Tuesday, Aug. 10, the annual meeting of this Society was held at Hexham, under the most favourable auspices.

The show of short-horned cattle, both for numbers and quality of animals, was capital. The cows and heifers were first-rate. In the horse show were animals of the most superior description, and too much cannot be said in praise of the whole lot. The entire horses were perhaps the best ever shown in England. They were almost all fine animals, and we have the authority of a gentleman of great celebrity in the agricultural world for saying they would bear favourable comparison with the recent horse-show at Chester. The whole, whether adapted for the field or the road, were unrivalled in quality. The sheep, though few in number, comprised animals from the Royal Agricultural and Yorkshire Societies' Shows. The Cheviots, in particular, were described as "a glorious lot," and fully maintained the character which the district bears for the quality of its Cheviots. The swine were also exceedingly good. The following comparative statement for the years 1853 and 1858, the years in which the Society has last held its shows at Hexham, will show the progress made, and the increase of the different classes of the stock exhibited:

	1853.	1858.
Bulls	20	32
Cows and heifers	27	42
Leicester sheep	70 pens.	44 pens.
Cheviot sheep	29	34
Horses	74	142
Swine	24	28
	244	320

The following is a list of the prizes:

SHORT-HORNED CATTLE.

JUDGES.—Thomas Crofton, Holywell, Durham; Isaac Harrington, Carlisle; Thomas Hunt, Thornington, Wooler

Bulls not under two years old nor over seven years old.—Best bull, £20, John Watson, Longwathby, Penrith. Second, £10, W. Todd, Elphinstone Tower, Tranent, Haddington. Third, £5, Messrs. Stephenson and Coulston, Fourstones, Hexham. *Commended*, Sir Walter C. Trevelyan, Bart., Wallington, Cambo

Bulls, one year old, calved after Jan. 1st, 1857, and previous to Jan. 1st, 1858.—Best bull £12, second do. £8, Henry Ambler, Watkinson Hall, Halifax; third, £6, John Atkinson, Peepy, Stocksfield

Cows, fit for breeding, to have had a calf within the year, or to be in calf or milk at the time of the show.—Best cow £10, James Douglas, Athelstaneford Farm, Drem, Haddington; second, £5, John Atkinson, Peepy, Stocksfield. *Highly commended*, Sir Matthew White Ridley, Bart., Blagdon, Morpeth; *commended*, do.

Heifers, two years old, calved after Jan. 1st, 1856, and previous to Jan. 1st, 1857. Best heifer £[illegible], second do. £3, James Douglas, Athelstaneford Farm, Drem, Haddington

Heifers, one year old, calved after Jan. 1st, 1857, and previous to Jan. 1st, 1858.—Best heifer £5, second do. £3, James Douglas, Athelstaneford, Drem, Haddington. *Commended*, Sir Matthew White Ridley, Bart., Blagdon, Morpeth; and Henry Ambler, Watkinson Hall, Halifax

Premium given by Edward James, Esq., Holeyn Hall, for the best three short-horned calves of either sex, the produce of any one bull, not under 6 months old, nor over 9 months old, £5.—Mark Spraggon, Nafferton, Stocksfield. *Commended*, J. T. Robinson, Leckby Palace, Thirsk

LEICESTER SHEEP.

JUDGES.—Thomas Bell, Bramptontown Foot, Carlisle; George Crofton, Kimblesworth, Durham; Thomas Mason, Pallinsburn Cottage, Coldstream

Rams of any age.—Best ram £10, second do. £5, John Borton, Barton House, Malton. *Commended*, Thomas Chrisp, Hawkhill, Alnwick

Shearling Lambs.—Best ram £10, second do. £5, John Borton, Barton House, Malton

Pens of 5 Ewes.—Best pen £5, Robert Crow, Speeton, Bridlington; second, £3, Marshall Stephenson, Fourstones, Hexham. *Commended*, Wm. Dinning, Nilstone Ridge, Haydon Bridge

Pen of 5 Gimmers.—Best pen £5, John J. Simpson, Pilmoor House, Hunmanby, Scarbro'; second, £3, Samuel Wiley, Brandsby, York

CHEVIOT SHEEP.

JUDGES.—Robert Donkin, Ingram, Glanton; Thomas Robson, Low Shield Green, Hexham; Henry Thompson, Ramshope, Otterburn

Rams of any age.—Best ram £10, Robert Shiell, Sourhope, Kelso; second, £4, Thomas Dagleish, Rennelburn, Langholm

Pen of two-year-old Rams.—Best pen £5, second do. £3, Robert Turnbull, Falnash, Hawick

Pen of 2 Shearling Rams.—Best pen £5, William Smith, East Learmouth, Coldstream; second do. £3, R. Turnbull, Falnash, Hawick

Pen of 5 Ewes.—Best pen £5, Robert and Thomas Shiell, Sourhope, Yetholm, Kelso; second, £2, Robert Turnbull, Falnash, Hawick

Pen of 5 Gimmers.—Best pen £5, Thomas Borthwick, Hopsprig, Langholm; second, £2, Robert Turnbull, Falnash, Hawick.

HORSES.

JUDGES.—For Horses for agricultural purposes, Joseph Atkinson, Branton, Glanton; Jonathan Melville, Pattison, Norwood, Gateshead; William Smith, Wretslade, High Barns, Newcastle-on-Tyne. For Horses for field or road, George Grace, Sockburn, Darlington; John Hall, Sedgefield; Thomas Parrington, Normanby House, Middlesbro'

Brood Mares for agricultural purposes, to have a foal at her foot, or to be in foal at the time of the Show.—Best brood mare £10, Messrs. John Bowes and Partners, Marley Hill, Gateshead; second, £5, John Atkinson, Peepy, Stocksfield

Three-year-old colts or fillies for agricultural purposes—Best colt or filly, £6, Nathaniel Clarke, Beamish, Fence Houses. Second, £4, Joseph Robinson, Blaydon Burn, Blaydon

Two-year-old colts or fillies for agricultural purposes—Best colt or filly, £5, George Dixon, Mantle-hill, Bellingham. Second, £3, John Fewster, Newlands, Ebchester

One-year-old colts or fillies for agricultural purposes—Best colt or filly, £5, George Arthar, Threepwood, Haydon-bridge. Second, £3, Mark Spraggon, Nafferton, Stocksfield. *Commended*, John Taylor, Presson, Coldstream

Brood mares for the field or road, to have a foal at her foot, or to be in foal at the time of the show—Best brood mare, £10, Nathaniel Clarke, Beamish, Fence Houses. Second, £5, Sir E. Blackett, Bart., Matfen, Newcastle. *Commended*, Robert Smith Davison, Newburn, Newcastle

Premium given by David Robertson, Esq , of Ladykirk – For the best colt for hunting purposes, three years old, £7, John Pearson, Langrigg

Three-years-old fillies for the field or road—Best filly, £5, Wm. Gofton, Pockthorpe, Driffield. Second, £3, Joseph Snowball, Netherwitton, Morpeth

Two-year-old colts or fillies for the field or road – Best colt or filly, £5, M. Thompson and Son, Kirkhouse, Brampton. Second, £3, E. Armstrong, Blackwell-hall, Upperby, Carlisle

One-year-old colts or fillies for the field or road—Best colt or filly, £5, John Birket, Broom-hill, Carlisle. Second, £3, M. Thompson and Sons, Kirkhouse, Brampton

Given by the Right Hon. Lord Ravensworth: Four-years-old geldings or fillies for the field, with a view to the national service in the ranks of cavalry—Best colt or filly, £10, John Tomlinson, Wighill, Tadcaster

Premiums given by Wentworth Blackett Beaumont, Esq., M.P.: Stallions for agricultural purposes—Best stallion, £10, Howdon and Son, Barlow, Gateshead. Second, £5, E. and M. Reed, Beamish Burn, Chester-le-street.

SWINE.

JUDGES.—John Dinning, Belford; Thos. Weir, Felton Mill, Felton; and Edward Young, Broomyholme, Edmondsley.

Boars of the large breed—Best boar, £4, John Harrison, jun., Heaton Norris, Stockport, Manchester. Second, £2, Joseph Wilkinson, Roundhay, Leeds

Boars of the small breed—Best boar, £4, John Harrison, jun., Heaton Norris, Stockport, Manchester. Second, £2, Joseph Wilkinson, Roundhay, Leeds

Sows of the large breed—Best sow, £4, George Robinson, Bolton Mills, Alnwick. Second, £2, Joseph Wilkinson, Roundhay, Leeds

Sows of the small breed—Best sow, £4, R. H. Watson, Bolton Park, Wigton, Cumberland. Second, £2, Joseph Wilkinson, Roundhay, Leeds.

EXTRA STOCK.

JUDGES.—George Atkinson, Seaham-hall Farm; William Stephenson, Thronkley House, Newcastle-on-Tyne; and C. Thompson, Dilston, Hexham.

CATTLE.

Richard Swan, Newcastle-on-Tyne, a pair of short-horned steers, £1 10s. His Grace the Duke of Northumberland, a pair of short-horned steers, 10s. H. F. Williams, Low Shields, Hexham, an Irish cow, 5s. John Coats, Lipwood, Haydon-bridge, bull calf, 5s. Mr. Atkinson, Peepy, Stocksfield, two short-horned calves, £1, and three short-horned calves, 10s.

SHEEP.

William Jobson, Turvelaws, Wooler, pen of 6 Leicester tup lambs, £1. Mr. Allgood, Nunwick, Hexham, pen of 5 half-bred wedders, 10s. Joseph Wilson, Manor-house, Morpeth, a pen of 5 Shropshire down ewes, 7s. 6d., and a pen of Shropshire down gimmers, 7s. 6d.

SWINE.

George Johnson, Kenmir, Carr Hill-house, Gateshead, pen of pigs of the large breed, 15s. William Gill, Beadale, Whickham, Gateshead, pen of 5 pigs, 5s.

IMPLEMENTS.

JUDGES.—George Atkinson, Seaham-hall Farm; William Stephenson, Thronkley House, Newcastle-on-Tyne; and C. Thompson, Dilston, Hexham.

Wm. Robinson, Milkridge, Haltwhistle, for a double mouldboard plough, 5s.

James Sitt, Tweedmouth, for a winnowing machine, 5s.

William Brown, Ousby, Melmerby, Penrith, for a double drill plough with expanding potato lifters attached, 10s.

Joseph Reeves and Son, Stanwix, Carlisle, for a double drill for sowing turnips, mangold wurtzel, manures, &c., 10s.

John Stalker, Welton, Sebergham, Carlisle, for a stall of ploughs and grubbers, 10s.

William Dodds, Tweedmouth, Berwick-on-Tweed, for a stall of various implements, £1.

E. Scott and Son, Felton, for an improved horse rake for quicken, hay, or corn, with regulator, 5s.

Anthony Dodds, Pity-Me, Durham, for a wheel plough and a swing plough, 5s.

Matthew Gibson, St. Andrew's Works, Gallowgate, Newcastle-on-Tyne, for a stall of chaff cutters, horse rake, and scuffler, £1.

H. T. L. Mc Cutcheon, Carlisle, for a stall of various implements, £1 10s.

David Young, Hassington, Berwickshire, for a turnip grubber, harrows, and plough trees, 5s.

John Gregory, Westoe, South Shields, for a stall of ploughs, harrows, and a hoe, £1.

Andrew Thompson, Berwick-upon-Tweed, for a stall of various implements, £2.

William Archbold, Horsley, Tyneside, for a corn winnowing machine, 5s.

Pattinson, Davidson, and Spencer, for a stall of various implements, £1 5s.

Humphrey Brown Burn, Horsley, Tyneside, for a corn dressing machine, 5s

Lord Charles Beauclerc, Riding Mill, for the "Beauclerc Archimedian subsoil plough," 5s.

John Charlton, Hexham, for an improved winnowing machine, 10s.

John Trotter, Bywell, Newcastle-on-Tyne, for reaping, rope-twisting, and key-screw machine, 10s.

Wilkin and Dickman, Alnwick, for a stall of various implements, £1.

W. Sawney, Beverley, for a stall of winnowing machines, and a blowing and hariff machine, £1.

Mr. Stokoe, for a reaping machine, £1.

DRIFFIELD AND EAST RIDING AGRICULTURAL SHOW.

Every annual exhibition since this society has been established has excelled its predecessor; and the now-fifth exhibition was the largest and the best of all yet celebrated. The entries were larger; and the stock and implements were of a very superior character; while the weather was very beautiful throughout. The show-field was crowded with its thousands of the nobility, gentry, and farmers of the neighbourhood, amongst whom was an immense number of ladies.

The horses were considered the finest collection ever brought together at a local show; and perhaps the chief attraction in this department was the exhibition of fifteen high-bred hunting colts, from two to three years old. These were sent by Mr. James Hall, of Scarborough, the master of the Holderness Foxhounds. Shorthorns were admirable and numerous. The bulls were in much greater number than at any previous show; and amongst them were some superb animals. The famous prize-bull Romulus, the property of Mr. T. Barber, of Sproatley, attracted great attention. He has been exhibited at a great number of shows, and has in almost every instance carried away the chief prize. Cows were equally excellent. Amongst them, the chief novelty was the exhibition by Mr. F. C. Matthews, of Driffield, as extra stock, of eight beautiful breeding cows in milk, which had been fed on four acres of grass land, and half a linseed-cake and a mash each per day. They certainly did honour to his dietary scale, and unmistakably showed what might be accomplished in the redundant production of grass by the application of proper artificial manures. The show of sheep could be scarcely surpassed for their beauty and symmetry. Those of Mr. Angas, of Neswick, were particularly admired. Driffield is famed for its pig markets; and some very finely-proportioned as well as monster specimens of the porcine race were not the least attractive objects of the show.

The implements were unusually interesting, and were applicable to almost every requirement in farming and domestic purposes, from the imposing steam thrashing machine to the humble potato-washer. Great improvements appeared to have been made in this important branch of the exhibition; and several novel and ingenious contrivances were experimented with. The newest curiosity was the "blast drill," the object of which is to protect the young and tender turnip plant from the destructive ravages of the fly and the slug. Another machine of great utility, and which was spoken of in the highest terms, was an improved turnip manure drill exhibited by Messrs. F. C. Matthews and Co., and which obtained a prize. It is admirably adapted for drilling two, three, or four hundredweight of manures as prepared by the above firm, per acre, without any mixture of ashes or riddled soil, thus effecting a saving of 4s. to 6s. per acre. Another most useful and important implement was exhibited by Mr. Clay. It combines cultivator, scarifier, and drag harrow. It is self-cleaning, and requires no stoppages for the operation. We heard it pronounced an excellent implement, and one likely to become of great importance to the farmer. The North of England Implement Company had one of the most splendid collections of implements we ever saw; while we were glad to observe that artificial manures are holding a conspicuous place at all agricultural shows.

The amount given this year in prizes was £334, the number of persons admitted to the field was 7,000, and the sum taken for admission was close upon £300. At the dinner the chair was taken by E. H. Reynard, Esq., of Sunderlandwick, the President of the Society, supported by Lord Hotham, M.P., Admiral Duncombe, M.P., and most of the neighbouring gentry, clergy, and farmers. In the course of the evening

Mr. James Harrison proposed "The Landowners of the East Riding," and remarked that it would be well if landlords would do away with the long and unmeaning agreements (applause). He was quite sure that if landlords would put confidence in their tenants they would never find a thorough-bred Yorkshireman deceive them (cheers).

Lord Hotham replied; and, in reference to what had fallen from Mr. Harrison, he said he considered the interest of the landlord and tenant identical—that he considered no tenant happy who did not feel confidence in his landlord, and he felt convinced that no landlord could be comfortable who had not the confidence of his tenant. A landlord should give everything to his tenant that he could, to assist him; and, on the other hand, it was the duty of the tenant to make the most and best of his farm (Hear). He had always held the opinion that if landlords and tenants would act fairly and honestly together, the result would be altogether satisfactory; but the contract between them ought to be mutual. For his own part he should not be induced to depart from the system he had hitherto pursued.

Mr. J. D. Dent, M.P., proposed "The Tenant Farmers." Throughout England there had been most wonderful improvements during the past few years; and to whom was the credit due? Undoubtedly the landlords had done their duty, but great credit was also due to the tenant farmers. Last year he went to the Lothians, where land was let on lease; but he saw nothing that could surpass the farming of the East Riding, and more especially that of the neighbourhood of Driffield (applause). He thought a lease would give the tenant a guarantee which he did not possess by their system of agreement.

The Chairman, in giving the toast of the evening—"The Driffield Agricultural Society"—spoke in high terms of the exhibition held that day, of the great improvements which had been made by the introduction of steam-power, of artificial manures, and the general improvement of all agricultural implements, for much of which they were indebted to the Crosskills, the Claytons, and others.

PRIZE LIST.

SHORTHORNS.

Judges.—Thomas Crofton, Holywell, Durham,
Samuel Robson, Louth, Lincolnshire,
B. Wilson, Brawith, Thirsk.

Best bull of any age, 15*l.*, to T. Barber, Sproatley
Second, 5*l.*, to J. Crust, Garton Field
Yearling bull, 5*l.*, to E. Robinson, Nafferton
Second, 3*l.*, to T. Sumner, Beverley
Bull calf under twelve months old, 3*l.*, to R. Fisher, Leckonfield
Cow in calf or milk, 5*l.*, to T. Harrison, Leven
Second, 3*l.*, to H. Thompson, Nafferton
Two year old heifer for breeding, 4*l.*, to T. Barber, Sproatley
Second, 2*l.*, to W. Wright, Sigglesthorne
Yearling heifer, 3*l.*, to J. R. Singleton, Grindale
Second, 1*l.*, to T. Barber, Sproatley
Heifer calf under twelve months old, 2*l.*, to T. Dawson, Driffield
Fat ox of any age or breed, 2*l.*, to J. Scott, Malton
Fat cow or heifer of any age or breed, 2*l.*, to T. Barber, Sproatley

SHEEP.

Judges.—William Abraham, Barnet-le-Wold, Lincolnshire,
John Hopper, Yedmondale, Pickering,
Robert James Wiley, Winterfield, Catterick.

Shearling ram, 10*l.*, and second, 5*l.*, to J. Borton, Malton
Pen of three shearling rams, 5*l.*, to W. Angas, Bainton
Second, 2*l.*, to — Simpson, Kirby Grindalyth
Aged ram, 5*l.*, and second, 2*l.*, to J. Borton, Malton
Pen of five shearling wethers bred in the Riding, 4*l.*, to D. Jordan, Eastburn
Second, 2*l.*, to J. Boast, North Dalton
Pen of five breeding ewes, having had lambs in 1858, and suckled them up to the time of showing (the lambs to be shown with the ewes), 5*l.*, to W. Taylor, Thornthorpe
Second, 2*l.*, to R. Crowe, Speeton
Pen of five shearling gimmers, 4*l.*, to J. Simpson, Hunmanby
Second, 2*l.*, to W. Holtby, Ruston Parva
Fat wether, 2*l.*, to H. Bowser, Faxfleet
Fat ewe or gimmer, 2*l.*, to S. Stavely, Tibthorpe

HORSES.

Judges.—John Batty, Bishop Monkton, Ripon,
Charles Nainby, Barnoldby-le-beck, Great Grimsby,
George Wightman, Swinefleet, Goole.

Stallion for hunters, 7*l.*, to W. Brigham, Beverley
Second, 3*l.*, to H. Robinson, Carnaby
Stallion for coach horses, 7*l.*, to R. Holtby, Burshill
Second, 3*l.*, to J. Johnson, Brigham
Stallion for roadsters, 7*l.*, to P. Ramsdale, Goodmanham
Second, 3*l.*, to — Hairsine, Home on Spalding
Stallion for agricultural purposes, 7*l.*, to W. Simpkin, Burton Agnes
Second, 3*l.*, to R. and E. Ellerton, Welton
Mare and foal for hunting, 5*l.*, to W. Angas, Bainton
Hunting mare or gelding, 5*l.*, to G. Holmes, Beverley
Mare and foal for coaching, 5*l.*, to J. Smith, Marton Lodge
Coaching mare without a foal, 3*l.*, to G. Holmes, Beverley
Roadster nag or mare, 5*l.*, to G. Holmes, Beverley
Roadster mare and foal, 5*l.*, to F. Rickall, Warter
Mare and foal for agricultural purposes, 5*l.*, to A. Duggleby, Cottam
Three year old hunting gelding, 5*l.*, to R. Dunn, Ferriby
Second, 2*l.*, to B. Johnson, Frodingham
Two year old hunting gelding, 3*l.*, to G. Goodlass, Skerne
Yearling hunting colt or filly, 2*l.*, to W. Whiting, Leven
Hunting filly under four years old, 4*l.*, to W. Gofton, Pockthorpe
Coaching filly under four years old, 4*l.*, to W. Reaston, Woodmansey
Three year old coaching gelding, 5*l.*, and second, 2*l.*, to B. Johnson, Frodingham
Two year old coaching gelding, 3*l.*, to J. Stockdale, Skerne
Yearling coaching colt or filly, 2*l.*, to T. J. Smith, Sutton Hill
Three year old roadster nag or mare, 5*l.*, to J. Allanson, Kendall
Second, 2*l.*, to W. Walgate, Preston
Three year old colt or filly for agricultural purposes, 5*l.*, to J. Burdass, Thwing
Second, 2*l.*, to R. Hornby, Driffield
Two year old colt or filly for agricultural purposes, 3*l.*, to J. Simpson, Hunmanby
Yearling colt or filly for agricultural purposes, 2*l.*, to T. Woodcock, Wilsthorpe
Pair of horses of either sex, for agricultural purposes, regularly worked up to the time of showing, 5*l.*, to J. Simpson, Hunmanby
Ladies' pony, under fourteen hands, 3*l.*, to — Harrison, Brandesburton
Highly Commended—Mr. Hall's hunting colts

PIGS.

Boar, large breed, 2*l.*, to J. Webster, Market Weighton
Sow, large breed, 2*l.*, to J. Hickman, Hull
Boar, small breed, 2*l.*, to E. Donkin, Birdsall
Sow, small breed, 2*l.*, to H. W. B. Bewick, Helmsley
Store pig (age and quality considered), the property of a labourer or working mechanic, 2*l.*, to J. Scott, Warter
Second, 1*l.*, to J. Storey, Warter

IMPLEMENTS.

Judges.—W. Angas, Neswick,
R. Beckett, Watton,
Peter Dunn,
J. Moore, Cranswick.
Henry Parker, Sledmere Castle.
E. Riley, South Dalton,
B. Topham, Bainton,
John Wheatley, Neswick,

Improved turnip manure drill, 1*l.*, to F. C. Mathews
3*l.*, to W. Sawney, Beverley

Assortment of implements, 1*l.* 10s., to T. Pickering, Driffield
Reaping machine and prize waggon, 5*l.*, to Wm. Crosskill, Beverley
Patent turnip cutter and double acting haymaker, 2*l.*, to North of England Implement Company
Assortment of ploughs and new cultivator, 2*l.*, to Robert Belt, West Lutton
Improved drag harrow, 1*l.*, to James Teal, Holme
Hariff and blowing machine combined, 10s., to George Pinkney, Bridlington
Robinson's patent clod crusher roller and horse rake, 1*l.* 10s., to Matthew Dale, Bridlington
Strong farmers' waggon, 1*l.*, to Geo. Ewbank, West Lutton
Two waggons, 1*l.*, to Joseph Petch, Frodingham
Improved farmers' waggon, 1*l.*, to William Winders, Wetwang
Sheep rack, 10s., to Wm. Smith
Phaeton, 1*l.*, to H. Weatherill, Paragon-street, Hull
Improved dog-carts, &c., 1*l.*, to Puckering and Houlgate, Beverley
Malvern dog-carts, 10s., to William Roberts, Driffield
Single-horse omnibus, 10s., to Francis Bradley, Driffield
Scuffler, 10s., to R. Belt, West Lutton
Straw cutter, 10s., to G. Pinkney, Bridlington
Steam engine, 3*l.*, to — Davys, Brothing
Thrashing machine, 5*l.*, to — Naylor, Winterton
Reaping machine, 3*l.*, to Thomas Watson, Gembling

REVIEWS.

A TREATISE ON THE LAW OF THE FARM.

By Henry Hall Dixon, Barrister-at-Law.

London: Stephens and Norton, Bell-yard, Lincoln's Inn.
1858.

"The present work," says the author, "is an attempt to draw together, for the first time, the principal legal decisions which bear upon the every-day incidents of a farmer's life." Those words are a true description of the work; and that he has succeeded in the compilation of the most valuable aid the farmer ever possessed will be evident to all who glance over its pages. There is not a legal question in connection with agriculture but is treated on, and decisions given in similar cases by the judges of the land quoted in explanation and in reference thereto. The first chapter is on "Tenant Right." Taking the report of the Committee of 1848 as his guide, he refers to what tenant right is *de facto*, not the tenant right about which so many debates have taken place within the last ten years. He says "tenant right" is "the claim for remuneration which an out-going agricultural tenant has on his landlord for various operations of husbandry, the ordinary return of which he is precluded from receiving by the termination of his tenancy, is termed 'tenant-right,' and is governed by the different customs which have long prevailed in the counties and districts of the United Kingdom. These customs are frequently most conflicting and difficult to define. In many counties they scarcely exist at all; in others it is rather the custom of districts, and in many the custom merely of certain estates. They are imported into leases or agreements for the letting and occupation of land, and unless the agreement, expressly or by implication, excludes the custom of the country, the landlord and tenant are presumed to contract with reference to it. Tenant-right extends to the crop which the out-going tenant has sown and leaves in the ground, and to remuneration for the preparation of the soil for crops by tillage, for the straw, hay, and occasionally dung left on the farm, and for growing underwood. Of late years, the term has happily been understood in a much wider and more liberal sense, and in many parts of the country a usage has sprung, which confers a right on the out-going tenant to be re-imbursed for certain other expenses incurred by him in cultivation beyond those of mere ordinary husbandry. Among such expenses are the purchase of food for stock, as well as of certain kinds of manure, and the draining, chalking, and marling of the soil. If there be no usage to that effect, and no express stipulation, the out-going tenant can claim no compensation for any of these improvements, however short may be the time between their completion and the termination of his occupancy. In practice, the compensation agreed to be paid by the landlord to the out-going tenant, is paid by the in-coming one. The cost of the several improvements is found by valuers, who spread the amount over a certain number of years, within which each kind of improvement respectively is supposed to repay itself, and deduct the time during which the tenant has enjoyed the benefit of it. It would simplify their calculations if the Michaelmas entry was universal."

He then gives the agricultural customs as observed in the different counties, bearing on the observance of the systems of hiring the land, and taking the crops, &c., from the out-going by the in-coming tenant; and the allowances, if any, which may be called "Tenant-right," claimed by the former. This part is a valuable little epitome of thirty-three pages—a beautifully condensed history of the farmer's position in every county in England and Wales.

"Interests in Land" is the subject taken up in the next chapter—which shows when a contract as substantially amounting to a sale or parting with an interest in land, or the produce of land, must be writing. The interests in land being very various, reference is made to all of them, down to digging turves, and decisions pertinent to each case given from various authorities.

The privileges which one neighbour has of another, by charter or prescription, and which are legally termed "Easements," is next treated on. This is the most complicated point to a farmer, involving as it does so many and various topics:—the right to construct and continue a drain—use the water of a drain, or even to have the water flow in a drain—the right of way for agricultural purposes, to cart manure, or timber, or carriages of any kind—the right of way for a parson to take his tithe—the obstructing a footpath in a field. All these, and many more "easements," are treated similarly to the other matter before quoted, and the best advice given to the farmer as to all and every critical question which may arise in his occupation.

The chapter on "Trees and Fences" is most valuable. Here the general property of trees being in the landlord, the various questions that may arise as to the right to lop them, where the right is not reserved by special covenant, is shown in several instances. Exceptional timber is pointed out, and the definition of waste in trees given. This chapter branches into several matters connected with fences, and some interesting questions of law as lately decided, on the obligation of railway companies to fence their railways, and where their liability commences and ends in case of injury to animals getting on their rails, are given.

The law in respect to "Dangerous Animals" occupies a chapter, as also that in respect to "Water." The latter, in these days of progress, is one of great moment. The agriculturists of a century back, or even less, cared little as to their rights in respect to irrigation, many of them not taking heed of the value to be derived from the use of water over meadows, or for other purposes. The right of the landowner to his land is not of more real or substantial value, than his right to the water that may rise on, or flow through his land; hence every information which touches on this most beneficial question, will be of value to those who want knowledge on this subject.

Another knotty point, that of "Servants," occupies a chapter. Servants are called "helps" in America, and should be so if they serve well and faithfully. Then they may be truly called a man's friends. Yet how often has the farmer to exclaim, in reference to his servants, "Save me from my friends"! The knowledge of the law as regards master and servant, we believe to be the most valuable in the work.

"Conveyance of Horses and Cattle." In these days of locomotion, as well as speculation, the liability of railway companies, as well as that of ship owners, is given very fully.

The law on "Distress," although it is one that appertains more properly to the landlord, yet in the event of misfortune coming on the tenant, it is right he should know how and when such legal proceeding should be properly carried out,

and where the penalties lie for wrongful detention. All these matters are therefore fully explained, and the remedies given where the law is overstepped.

"HUSBANDRY COVENANTS," and the rights of the tenant under them, are perhaps of as much importance as that in respect of servants. The custom of the country where special covenants are not in force; the right of the tenant to enter and take the away-going crop; compensation for drainage, and other points, are treated under this head, together with toll exemptions in respect to manure for the farm, whether artificial or natural; and a case is cited where exemption from toll was hinted at by Lord Campbell for a cart carrying spades employed for husbandry.

"TRESPASS" is a well-known word in agricultural mouths; yet how few know when the offence is committed! so many points being necessary to constitute the claim for trespass. A perusal of this chapter will give full information how trespass is committed in the various ways which the law defines, and game trespasses are also very fully gone into.

The chapter on "LANDLORD AND TENANT" is a brief history of what should be their transactions from the moment of commencing a tenancy to its close; and even the minutest point which may arise is fully and fairly canvassed, with the various Judges' decisions on every part of the tenancy, as well as on the incidents which may arise—and they are numerous indeed. The chapter concludes with decisions on the tenant's right of removal of certain fixtures. A case is given where "a cattle house built with the landlord's timber" by the tenant, and which, with some timber of his own used for the same purpose, was removed by a tenant: and it was decided that he had no right to remove it although the landlord gave him the timber, with many other important and interesting decisions.

A chapter on "TITHES," another on "CONTRACTS AND SALES" (which goes into the law of samples, markets, &c.), and another on "HORSES AND CATTLE" complete the work.

The enumeration we have given will show the nature of this publication, in which we have abundant proof of the energy and painstaking research of the author. Upon books of this class we are always unwilling to offer an opinion, inasmuch as the whole subject of legal lore is so undigested in the generality of legal works that, unless to those who are "to the matter taught," they are a sealed book to the million. Here, however, we make an exception, and have been constrained to give our readers such an outline as will indicate the value of the work to the farmer. In its information, dealing as it has to do with legal terms, it is clear and authentic; copious without prolixity; it does not furnish a bald explanation of facts, but a full development of legal principles applicable to husbandry well illustrated and explained. In fact, the extent and clearness of the information it affords on the subjects it refers to, are truly surprising.

FIRST AND SECOND REPORTS ON THE NOXIOUS, BENEFICIAL, AND OTHER INSECTS OF THE STATE OF NEW YORK,

MADE TO THE STATE AGRICULTURAL SOCIETY, &C., &C.

By ASA FITCH, Entomologist of the New York A. Society.

Albany: C. Van Benthuysen, 107, Broadway. 1856.

We have already made reference to this work, and although a large portion of it applies more to the orchard and forest than to the common vegetable products of the farm, the subject is of so much importance as to demand a more detailed notice. But small progress has been hitherto made in devising remedial measures against the ravages inflicted by these enemies to vegetation; and when we consider the variety of species of noxious insects—almost every plant having one peculiar to itself—their amazing fecundity, and the constant succession of their generations during the summer months—it would appear marvellous that any plants escape destruction. Nature herself, however, has provided a remedial check, by raising up hosts of enemies, which devour and destroy vast multitudes of the most numerous, injurious, and voracious.

Many of the insects described in this volume are peculiar to the new world; but, generally speaking, the work applies to *species* rather than to *genera*; for most of the latter have their counterparts in Europe. It is also said that some of those considered indigenous to the American continent have been imported into Europe, proving most destructive to the orchards both in England and on the continent. Such is the disease called "the American blight," which during the last fifty years has attacked the apple trees, and destroyed whole orchards. We have ourselves had trees ravaged by this disease, which makes its appearance in the bark of the tree in spring, in the shape of a white froth, and that is nothing more than the sap elaborated by a small insect of the skipper kind. But if this disease has been imported from the western world, we cannot find any insect in the work analogous to it, either in its form or its mode of attack. It is the larva which produces the first effect upon the bark, which it exhausts of the sap, and consequently prevents the progress of the growth. And as it extends its ravages from the very root to the topmost twig, unless its operations are arrested the tree is soon destroyed.

With regard to a remedy, we have applied gas tar and a strong decoction of tobacco. But, although these applications checked the disease, they by no means cured it; for after a week or two, it broke out again as strong as ever; and we are inclined to think that a thin coating of grease or soap would be more efficacious than either of the above. The repugnance which many of the insect tribes exhibit to oleaginous substances is well known; and, if mixed with a strong alkali, such a preparation is likely to be effectual in destroying the larva of this insect.

But the most numerous in species and in production are the aphides, of which there are two kinds—the *Aphis mali* or apple-plant louse, and the *Aphis malifoliæ* or apple-leaf louse. Some idea may be formed of the vast fecundity of this destructive insect, if we state that there are from sixteen to twenty generations hatched in the course of the summer, each individual producing from twenty to forty young ones. Mr. Curtis estimates "that from *one egg will be bred, in seven generations*, 729 *millions of lice*;" "and," he adds, "if they all lived their allotted length of time, by autumn everything upon the surface of the earth would be covered with them." Fortunately, a host of enemies constantly accompany them wherever they are found; notwithstanding which their depredations are sometimes very extensive. Every description of plant has its peculiar species of *aphis*, which exists chiefly on the saccharine portion of the sap; and it is from this is derived the honey-dew, which is nothing more than an exudation from the aphis. It is remarkable that the ant is the protector of the aphides on account of this exudation. It is a constant attendant upon them, and draws the saccharine matter from them by gently touching the back. Wasps, and some species of flies, devour the aphides in vast numbers; but still their numbers are frequently overpowering. A friend of ours, having his bean fields very much infested with the aphides, invented a bag which was drawn over the tops of the beans. By this means he collected in one day *twelve bushels* of the aphides from one field of about eight or ten acres. These he gave to his pigs, who ate them with great relish.

How to destroy these from trees and shrubs is the difficulty. The work before us recommends (for small trees we presume) a small tent-like apparatus, fastened to a long pole thrust through the centre of the tree, and spread over the whole of the foliage, drawing it close round the stem at the bottom. Then introduce tobacco smoke, which in ten or fifteen minutes will destroy every insect.

The insects attacking the wheat plant are those belonging to the genera *Chlorops* and *Oscinis*. The larvæ of these flies destroy the stalk of the wheat near the root, whilst others infest the ear, or burrow into the straw. In America these flies are considered to be the chief cause of the scanty return of wheat per acre; but we question much whether the production of the insects themselves is not greatly promoted by the defective system of cultivation practised in that country. We have both the *Chlorops* and the *Oscinis* in this country annually; but high farming is as destructive to *vermin* as it is to *weeds*; and it is rarely that the devastation committed by the former on highly-cultivated land is very serious.

Besides these two genera, there are in America the "wheat mow fly" (*Agromyza tritici*), the "wheat thrips" (*Thrips tritici*), and the "three-banded thrips" (*Coleothrips trifasciata*). Some of these attack the flower, others the soft grain whilst in the milk. In either case the crop is destroyed, so far as the injury is effected. No specific cure for this disease has been proposed; and *prevention* alone, as we have said, is in the power of the agriculturist. As cultivation becomes more perfect and extended, as the land becomes better drained and better tilled, the evils that arise from these scourges disappear, and we find a healthier and more productive era succeeds. When the average produce of wheat in England was only two-and-a-half quarters per acre, the ravages from insects were far more general and destructive than they are now that the average has risen to four quarters and a-half.

The apple-tree caterpillar is a well-known scourge to that plant. If allowed to have its full swing, it will soon destroy every vestige of foliage from the tree, and must therefore be attended to, on the first appearance of the web or nest, or even before; for the eggs may be detected in the spring, before the leaves are put forth, at the ends of the twigs. These should be carefully gathered into a basket, and burnt in the stove. If, however, this is neglected, the nests may still be destroyed before the caterpillars have committed their ravages. But no time must be lost after the appearance of the web on the trees. Placing a ladder against the tree, grasp every nest with the hand, by which the colony is crushed at once. May is the month when these devouring pests make their first appearance. The orchard should be gone over repeatedly, as many will escape the first attack, and will still greatly annoy you if not destroyed. By this simple and direct means—and no other can be depended on—the whole of the brood may be removed without difficulty or expense beyond the time required. This is a trifle compared with the value of the crop.

SPRING CORN.

SIR,—The deficiency in the crop of spring corn this harvest is, I believe, not confined exclusively to the light lands, but extends to the strong and mixed soils as well. It will probably amount, on an average, to at least one-third of the crop on oats and barley, and will render a large importation of those articles necessary. The question is, whether we shall be able to obtain them?

I raise this question on account of the state of the crops of oats and barley in France, where such has been the severity of the drought during the spring and summer that they do not expect to thrash more than *one-sixth* of the average yield. The following extract of a letter written on the 23rd July, by M. Doniol the elder, is descriptive of the state of things at that time in Auvergne:

"Since the 3rd of March, the department of La Haute Loire has not had a shower; so that it is entirely burnt up, and it is impossible to give to the crops of roots, &c., the proper hoeings. Nearly all the spring sowings of small seeds have failed, such as trefoil, clover, ryegrass, &c. The barley and oats have not been able to shoot the ear. The deficiency on the first of these will not be less than five-sixths of the average, and still greater on the oats. The wheat-crop will be generally a good average, although the straw is short. The rye is abundant, both in straw and grain, on the mountains, but will be very deficient on the low grounds. The tropical heat of the first fortnight of June paralysed the development of that grain.

"The drought has not only reduced greatly the first crop of forage of every kind, and arrested the growth and development of the spring cereals, but has completely destroyed the second crop of forage, and so dried up the pastures that everywhere we can only keep the cattle alive in the stalls; so that the small crop of hay we were able to save, and which is usually reserved for the winter, will be consumed in a great measure before the dead season arrives. It is therefore certain that great distress will ensue, and the fairs are crowded with animals on sale, which meet with few purchasers, even at a reduction of 50 per cent.; so that breeding of cattle is greatly reduced."

Such is the state of France—for it is not confined to the department of Auvergne alone—at the present time, as described in the "Agricultural Chronicle" of the *Journal of Practical Agriculture*. Even on the sea-coasts, where generally, when other parts of the interior are dried up, there is a sufficiency of moisture, forage is exceedingly scarce. A great number of lean cattle are brought to all the markets and fairs; but the graziers are so discouraged with the prospect, and so convinced that no price of meat is likely to remunerate them for the expense of fattening, that they decline purchasing at any price.

The leading agriculturists of France are now at work devising means of increasing the amount of fodder in future, and of finding substitutes for oats and hay in feeding horses. They recommend crushed or ground barley mixed with crushed oats, in the proportion of five of the former to three of the latter. Barley, however, is likely to be as scarce and as dear, in proportion, as oats; and we question whether anything will be saved in using it. But in the case of France there is no alternative, it being certain that the crop of neither oats nor hay will last out half the coming season.

The above statement will account for the extraordinary fact that, with an importation of oats of upwards of 200,000 qrs. in three weeks into London, the price has not given way, and that some of the largest factors on Mark Lane are purchasing all the oats they can lay their hands on. I therefore would advise those of your readers who are growers of oats this season (and barley too) not to be in any haste to thrash, it being certain that prices must eventually be much higher than at present. Our crop of hay and straw, though below the average, is much better than that in France, and the aftermath of grass is likely to be large, so that the stock will be kept out quite the usual time. But as it is probable the foreign supply of oats and barley we usually import will be diverted into another channel, there is every reason to expect that both those grains will be scarce throughout the season.

Yours, &c.,
S. C.

CALENDAR OF AGRICULTURE.

In late climates the harvest is prolonged into this month, and must be managed as before directed. Cut beans with the hand-sickle; tie the crop into sheaves with straw ropes or tarred twine, and carry when dry; and build the crop into ricks, or lodge it in barns. Thatch all ricks quickly; rake the rick-yard clean, and carry the rubbish to the dung-yards. Employ plenty of hands in harvest, and reward them liberally.

Gather fruits, as pears and apples.

Pick hops: use the haulm for litter, and place the poles under cover for another year. Dry with coke in the kiln. Some use sulphur to give the hops a yellow tinge.

Plough the wheat fallows, and towards the end of the month begin to sow. Finish the laying on land of dung and composts. Plough leys for wheat, and scuffle bean and pea grattans as a preparation to be sown with wheat. Prepare by fallowing the lands intended to be planted with early spring crops, as potatoes, Swedish turnips, parsnips, and carrots. Lay on and plough in the dung in drills, or in broadcast; and if in drills, earth them afresh in the spring, and plant the crop; if in broadcast, the land must be ploughed before being drilled. This autumnal preparation both facilitates and expedites the spring operations; but only early climates admit of the application of it.

Scarify the surface of lucerne before laying upon it the well-pulverized composts; spread the dung over the surface very carefully and evenly; bush-harrow it, and then roll it heavily in dry weather. Such treatment will secure an early spring vegetation.

Collect manures by every means to the liquid pit and the compost heap. Burn for ashes, and keep them under cover.

Towards the end of the month sow rye for a seed crop, and also for being eaten on the ground by sheep in the spring. Sow winter tares mixed with rye, or winter beans, or winter barley, on lands that are clean and in good heart, or on a partial fallowing with dung.

Scour road-sides, clean out open ditches to be ready for the winter floods, enlarge the courses of brooks: use the excavated materials for composts; the very earthy parts to be mixed with lime, and the vegetable for being burned into ashes. Omit no opportunity of collecting manures in any form.

LONG ISLAND, NORTH AMERICA, A HOME FOR EMIGRANTS.

Dear Sir,—About this time last year I gave you some description of the rich soil in the neighbourhood of Lexington, Kentucky: a more beautiful grazing country I suppose cannot be found in Great Britain. The ground being covered with rich blue grass, protects the surface soil from the scorching sun, and it is surprising to see the abundant feed it produces. Land is held very high there, and there are but few of the holders of it who wish to sell.

The western prairies of Ilinois, Michigan, Indiana, and other western states, are full of vegetable matter, and very attractive to the eye of an Englishman. Land is cheap, and in many instances grows abundant crops, suitable to such soils: the face of the country is beautiful; and with *this character fixed to it*, Englishmen make their way there before examining other parts of this country, which, when taking all things into consideration, would be much more to their interest to tarry and explore before permanently settling themselves. If land is cheap at the west, every kind of produce is cheap in proportion; and the unhealthy state of the climate is a strong barrier against this part of the United States.

I have lately taken an exploring trip through Long Island, on which are very large tracts of land uncultivated, covered with bushes and the remains of the old forest. This land has long had the reputation of being the barren plains of Long Island: the inhabitants themselves seem determined it shall never be anything else; and, *with this character fixed to it* it is overlooked. Every one who goes to examine it meets with that long-established *strong prejudice* from the islanders, that it has been almost impossible to convince any of them of its *true fertility*. It seems to me almost impossible to persuade any of these persons that they possess on the whole of that island (for it is all of the same character) one of the best soils ever seen—one that will afford more pleasure and profit for a proper state of cultivation than I have before met with in any country. How it is possible for such a tract of land as this, almost in sight of New York city, where the highest price for every description of produce is paid, to have laid in a state of nature, under the eye of an intelligent and enlightened community until the nineteenth century, is to me one of the greatest mysteries of the age. From eighteen inches to three feet of the surface soil is as beautiful a sandy loam as I ever saw cultivated—not a stone to be seen on the surface, and just a right proportion of sand, as to make the soil work easily: a pair of small horses will go through the hardest ploughing with ease, after the brush and roots are eradicated, and this is a mere trifle: any industrious labourer can cut an acre and half per day of the former, while the latter can be torn up, root and branch, with two yoke of oxen and a strong plough, with a wide shear, at the rate of one and a half to two acres per day. The Long Islanders who own cleared and highly cultivated farms, and who are asking from one hundred to four hundred dollars per acre, for precisely the same kind of land as is now offered near to the North Islip station, 43 miles from New York (much of it at twenty dollars per acre) deem this "barren"; still we may take a spade and dig to a deeper length of good soil on the North Islip land called "*barren*" precisely of the same description as that of the highly cultivated four miles distant, some of which has been lately sold for four hundred dollars per acre; still these neighbours, from their long-established prejudice against this land, are *determined it shall be "barren."* It seems to me impossible to make them believe otherwise, "even if one rose from the dead." This strange state of things seems to me unaccountable; but most of these Long Island farmers are become rich: their land is easily tilled, therefore they take all things as easily in proportion. A little brush, a few roots, and here and there a stump, frightens them: almost every farmer *who is a farmer* has plenty to live upon, and they enjoy that plenty easily.

Now, Mr. Editor, I have written this article for the benefit of those enterprising emigrants leaving England for a new home, and who I should like to see fixed upon such a soil, and would advise them to go and examine it before they proceed further westward. There are a great many thousand acres of it for sale, and the price is rapidly increasing. It is nearly all of a similar character: it is held by different owners, and the title invariably good. I have no interest in this soil myself, further than I should like to see enterprising Englishmen upon it, and shall endeavour to procure a farm as soon as possible.

This island being surrounded by the ocean, abounds in fish and wild fowl; length about 110 miles, breadth about 12 to 14. The balmy air from the ocean on either side is very refreshing, and a more healthy country cannot be found in the world. Protestant episcopal churches are dotted all over the island, and Protestantism appears to be the prevailing religion. Schools of almost every description are close at hand. A great deal of fish is used as manure, and can be bought at a cheap rate; and the Long Island railroad runs through the centre from one end to the other. I know of no country so suitable to the taste of an Englishman as this, after leaving his native home. He can pursue almost the same course of cropping, with the exception of securing his root crop from the frost, which is more severe than in England, but less than the western country, as the winters are milder on Long Island, and the Indian corn crop comes in its turn here, as adopted for the root crop there.—Yours, sincerely,

WM. HY. SOTHAM.

Owego Tiogo, Co. Py., North America, July 19.

AGRICULTURAL REPORTS.

GENERAL AGRICULTURAL REPORT FOR AUGUST.

Throughout the month the weather, notwithstanding that rain has fallen at intervals, has been highly favourable for all agricultural labours. Great progress has, therefore, been made in cutting and carrying wheat and other crops, and we are gratified in stating that, with very few exceptions, the produce has reached the stack yards in excellent condition. So far everything has gone on well; but the all-important question which has formed the general topic of consideration and discussion, is the actual yield of the new crop of wheat. In the early part of the month, a great difference of opinion prevailed on this subject; but, as thrashing has progressed, that difference is less apparent, and we are now in a position to state with something like accuracy what the yield really is, when compared with former seasons. In general terms we may state, without fear of contradiction, that the crop is fully equal to the average of most years; but, in order to arrive at a true estimate, we must omit from our calculation for the moment the wonderful result of last year, both as to quantity and quality. We should say, then, that more wheat has been grown than either in 1855 or 1856, that the quality of the various samples is better than in those years, and that more straw has been grown than in 1857. This latter feature in the crops has led many persons to imagine that more wheat has been produced than in the year just referred to, owing to the large number of ricks upon most farms, and their unusual bulk. Drawing a closer comparison with 1857, we believe that we are justified in stating that the yield, as a whole, will be found one quarter deficient upon heavy, and from 4 to 6 bushels less upon light, soils. Against that deficiency we have to place a wonderfully large supply of straw, the value of which, however, is a mere trifle when compared with the deficiency in the growth of wheat. Future prices of wheat have, we need scarcely say, been the subject of much discussion. When we consider that our own crop is a good one, and that there is still a large quantity of last year's growth of wheat in stack, and that we are likely to receive steady supplies from abroad, we arrive at the conclusion that the quotations will exhibit very few fluctuations during the remainder of the year. But our attention has been directed to some unfavourable reports which have lately come to hand from the South of Russia, in reference to the wheat crop, in proof that the shipments from that country next year will be on a very limited scale. We have, however, good reason to believe that the reports in question are overcharged, although we are free to admit that the harvest in Russia generally is not equal to last year, which, indeed, appears to be the case in most of the other great wheat-producing countries of the world. For this reason, we conclude that prices in this country have seen their lowest point for some time. The bulk of the barley crop in England has been secured, and its yield has turned out better than was at one time anticipated; still the growth is unquestionably a very moderate one, both as to quantity and quality. Oats are decidedly a light crop, and the yield of both beans and peas is very deficient. From nearly all parts of the United Kingdom the most flattering advices have come to hand in reference to the potato crop. Everywhere it appears to be almost wholly free from disease; the tubers have ripened rapidly, and the various markets have been heavily supplied with the kinds usually disposed of at this time of year, and which have sold at from 40s. to 100s. per ton. On the continent, however, the crop does not appear to have gone on well, many correspondents stating that the growth will fall considerably short of last season.

In the midland, eastern, and southern districts, the second crop of hay has turned out unusually large—so large, indeed, that it is estimated that the season's produce is equal to 1857. The growth of straw is everywhere great, se that low prices may be anticipated. In Lincolnshire, Leicestershire, and Yorkshire, owing to the want of rain, very little hay has been produced.

The fruit season has turned out a most abundant one; the growth of all kinds of fruit has seldom or never been equalled, either for quantity or quality.

The various markets have been fairly supplied with stock in number, but, for the most part, the condition of both beasts and sheep has been very inferior. The trade generally has ruled somewhat active, and prices have ruled considerably higher than in the previous month.

Although nearly 80,000 bales of colonial wool have been offered at public sale, the wool trade has continued very firm, and prices generally have advanced 1d. to 2d. per lb. English wool has become in improved request, partly for shipment to Belgium.

The hop trade has continued in a most depressed state, arising from the favourable accounts from the plantations, and the high range in the duty, which has been done at £250,000, and even £260,000. At this time in 1857, it was called £155,000, and new pockets were sold at £8 to £12 12s. This year the hop trade has opened at £5 12s. to £8 8s. per cwt. The hops sold at those quotations were in first-rate condition.

The turnip and beet crops are likely to turn out well, except in those districts where rain has been much wanted.

Notwithstanding that the demand for wheat during the month has not improved, prices have been fairly supported. Spring corn of all kinds has realized extreme rates without difficulty, but flour has met a dull inquiry.

In Ireland and Scotland the transactions in all kinds of produce have been on a very limited scale, at about stationary prices.

REVIEW OF THE CATTLE TRADE DURING THE PAST MONTH.

Nearly the whole of the various markets have been extensively supplied with both beasts and sheep as to number; but their general quality has shown a great falling-off when compared with some former corresponding seasons. This deficiency in quality, consequently in weight, is chiefly owing to the small supplies of pasture food in the leading grazing districts in the north, and also to many graziers having been compelled to send away large supplies of stock in a half-fat state. The same state of things having prevailed in the North of Europe, we have imported large numbers of beasts from Denmark considerably *less* than half-fat, and which have sold at miserably low prices. The deficiency in the supply of meat has led to some activity in the trade, and to rather an important rise in the quotations, very prime Scots and the best old Downs having in some instances sold at 5s. per 8 lbs. in the Metropolitan Market. Lambs have also produced more money, and the value of other kinds of stock has had an upward tendency. Fortunately, of late, rather abundant quantities of rain have fallen in some parts of the north, and pasture food has rather increased; hence, future supplies will, we imagine, show more weight and a better quality. Certainly, the graziers will not be compelled to send away stock in miserably low condition.

On the whole there is a fair prospect of an average growth of turnips and swedes for winter consumption; but this remark applies more particularly to districts south of the Humber, where the quantity of hay, now that the second crop has been secured, is nearly or quite equal to last season.

The total supplies of stock shown in the Great Metropolitan Market during the month, have been as follows:—

Beasts	26,915	head.
Cows	517	,,
Sheep and lambs............	151,530	,,
Calves	3,127	,,
Pigs	3,510	,,

COMPARISON OF SUPPLIES.

Aug.	Beasts.	Sheep and Lambs.	Calves.	Pigs.
1854..............	21,384	164,920	4,286	3,870
1855..............	20,816	151,870	3,356	4,272
1856..............	21,271	147,250	3,354	2,875
1857..............	20,695	143,758	3,173	2,450

During the month just concluded 13,000 beasts arrived from Lincolnshire, Leicestershire, and Northamptonshire; 2,800 from other parts of England; 370 from Scotland; 250 from Norfolk; and 1,280 from Ireland.

The annexed figures represent the importations of foreign stock into London:—

Beasts	8,293	head.
Sheep	19,500	,,
Lambs	2,764	,,
Calves	3,512	,,
Pigs	2,935	,,

COMPARISON OF IMPORTS.

Aug.	Beasts.	Sheep.	Lambs.	Calves.	Pigs.
1854	5,507	19,770	1,178	2,495	2,176
1855	5,941	22,605	984	2,484	3,476
1856	5,677	17,801	1,271	2,301	1,901
1857	4,692	23,215	1,760	2,661	2,322

Beef has sold at from 2s. 10d. to 5s.; Mutton, 3s. to 5s.; Lamb, 4s. 8d. to 6s.; Veal, 3s. 6d. to 5s.; Pork, 3s. to 4s. 2d. per 8 lbs. to sink the offal.

COMPARISON OF PRICES.

	Aug., 1855.				Aug., 1856.				Aug., 1857.		
	s. d.		s d.		s. d.		s. d.		s. d.		s. d.
Beef, from	3 10	to	5 4	..	3 2	to	5 0	..	3 0	to	5 0
Mutton ..	3 6	—	5 2	..	3 4	—	5 2	..	2 10	—	5 4
Lamb....	4 8	—	6 0	..	4 8	—	6 0	..	4 8	—	6 0
Veal	4 4	—	5 4	..	3 6	—	5 0	..	3 6	—	5 0
Pork	3 6	—	4 6	..	3 4	—	4 8	..	3 8	—	4 8

Newgate and Leadenhall markets have been fairly supplied with meat, which has sold steadily, on rather higher terms.

THE ISLE OF ELY.

Absence from home prevented our report appearing last month; we must therefore now seek to repair that omission, and briefly review the proceedings of the last two months. After the intense heat of June, we had a change to cool and showery weather, which continued till nearly the end of July, when fine harvest weather set in, and continued for several days, interrupted only by the gale of wind which blew so furiously on Sunday, the 25th ult., and which in this locality was unaccompanied by rain. On our hot gravelly soils the high temperature of June had evidently done mischief to the wheat crop, and July presented signs of premature ripening; and as harvest approached the symptoms of blight were unmistakeable, and on all these soils the sample will be irregular. The storm of wind to which we have referred occasioned the standing crops where the grain was ripe to shake a good deal; we estimate the loss at from one to four bushels per acre: but, fortunately, many of our wheats were laid, and consequently escaped injury. Harvest on our forward soils began pretty generally on the 23rd and 24th ult. The crop of wheat has cut up bulky, but we are not sanguine as to either yield or quality: we think both will be very various, especially the latter. On some of our best-farmed black soils the crop has ripened brighter than on the gravel, and will yield a better sample. Should this week continue fair, the bulk of our wheats will be secured in fine condition. Although last week we had some interruptions, in some parts of the Fens the showers falling very heavily, they were extremely partial, until Saturday afternoon, when we had a teaming rain on all sides of us, but the fine day on Sunday enabled our farmers to resume their carting again yesterday morning. We have had a few samples of new wheat in the market: they have generally been coarse-looking, but have deceived us exceedingly in the weight; indeed, we never remember to have seen samples with *such* looks yield such heavy weights, and the condition is unprecedentedly fine. The oat crop is various; it has improved a good deal, but will be below an average. A few of the earliest beans may yield a fair crop, but generally both this and the pea crop are decidedly bad, and in some instances not worth harvesting. Coleseed is generally a bad crop, being injured by fly and wireworm, and blown away by the storm of the 25th ult. in many instances. Grass-keeping is short, and pastures require more rain before they can afford much food. Mangels look well, and promise to be a good crop.—Aug. 17.

CUMBERLAND.

Harvest has come, and at something like railway speed. Where the harvest was calculated a few weeks ago to become general towards the latter end of the present month, it is at least a fortnight or more earlier than in an average of years. The wheat crop, of which a considerable portion is already in stock, turns out a bulky one, and on rich loamy soils much of it was lodged early, indeed some of it before it was well in ear, and will consequently be ill-fed, with a deficient yield. The quality will generally be inferior to that of last year, but in point of quantity, taking the aggregate, it will perhaps be above an average. No part of the wheat crop has as yet been secured, and should the weather continue for some time, as it has been the last few days, the operation of carting from the field will necessarily be slow and tedious: there will also be a risk of the grain suffering damage, the weather having been wet and unfavourable for harvest work, and at present has a very unfavourable appearance. Barley is a good crop, and a part of it has already been secured in the more early districts. Oats are a good crop on rich dry and loamy soils, but on cold thin soils are deficient, and on the aggregate the crop will scarcely come up to an average one. Potatoes looked well and very thriving during summer, but unmistakable symptoms of disease are apparent in the stems, and the tubers also show disease, but not yet to a very great extent. Turnips got badly on from the beginning, with the exception of the early sown swedes, which were got in about the first week in May. These came well, and got away without much injury from the fly, and will make out a very good crop; on the contrary, those put in about the 20th of the month suffered severely from the fly, many fields having to be resown, and are not yet doing well: and to add to the mischief produced by the fly, the black caterpillar has in several places made its appearance, and committed its usual ravages. The turnip crop will be much inferior to former years, but may improve much if the latter part of the season be favourable, and free from frost. The late-sown common turnips did better, and promise to be a fair crop. The hay crop was in general good, and secured in excellent condition. It has been a good grass year, and stock has had every chance of doing well. Beef has been scarcer, and, as a natural consequence, the price has been high; mutton too maintains its price better than could have been expected. The fairs for store lambes are now being held, and the price of the youthful bleaters is not much short of last year, very little indeed, taking into account that they are considered rather inferior in quality to last year.—Aug. 19.

AGRICULTURAL INTELLIGENCE, FAIRS, &c.

BANBURY MONTHLY FAIR.—The supply both of beasts and sheep was very moderate; fat beasts met with a ready sale at from 6½d. to 7d. per lb. according to quality; good descriptions of mutton fetched from 6½d. to 7d. Of stores the supply was also small, the market being rather flat, owing no doubt to the deficiency of pasture, consequent upon the long-continued dry season.

BEDALE FORTNIGHT FAIR.—We had an average supply of stock. There was nothing new in the character of the market, prices being the same as last fair, and business rather slow. Beef, 6s. 6d. to 7s. 6d. per stone; mutton, 5d. to 6½d. per lb.

CARMARTHENSHIRE CATTLE FAIRS have been held at Narberth on the 10th; at Lanstephen on the 11th at Carmarthen on the 12th, and at Lampeter on the 14th inst. There was a large number of small store cattle for sale at each of those places. There was a respectable attendance of dealers, but owing to the want of rain in the English counties where those beasts are usually sent to, they purchased very sparingly and at reduced prices. Good three and four-year old oxen were scarce, and sold readily at fair rates. Fat cows were in fair supply and demand at from 4½d. to 6d. per lb. according to quality, sinking the offal. The few cows with calves shown sold readily at high rates. A large number of horses and colts were on offer at Narberth, Carmarthen, and Lampeter, and many sold at lower prices. A large number of pigs were penned, and many sold at lower prices than have been known for years past.

CHELTENHAM FAIR was scantily attended, and business small. Show of beasts limited, but good prices asked and obtained. A great number of sheep were penned, but many were taken away unsold; prices, from 30s. to £3. An extensive display of horses, but majority only suitable for agricultural purposes, and the rates demanded in many cases far beyond their value. Hunters and carriage-horses scarce and brought good prices. Show of pigs moderate, and fair prices realized.

HORNCASTLE FAIR.—This great horse-mart was brought to a close on Tuesday, and commanded a great sale throughout, the mart being daily supplied with fresh arrivals to meet the demand. Carriage-horses continued to sell quickly. For hunters there was much competition, and some were sold and re-sold several times; young horses suitable for chargers and the artillery were bought up eagerly to complete a foreign contract. As we have previously recorded prices, it would be superfluous to recapitulate them; suffice it to say, that no abatement was made in the prices of horses to the end of the fair. London dealers continued to buy the best selections, many of whom took away strings of horses varying in value from £1,000 to £4,000.

IRVINE FAIR.—There was an ordinary show of horses, but not many of fine quality. Sales were dull, and at fully as much reduction in price as at late fairs elsewhere. First-class horses were in fair demand, at prices ranging from £40 to £50. As high as £45 was offered for one horse, but was refused. Of the second class, prices range from £30 to £40. This class, the most plentiful in the market, was rather dull of sale; and at the close, a number went away unsold. Of riding-horses there was a limited supply; and for those exhibited, from £20 to £25 was demanded.

KEYNSHAM FAIR.—There were upwards of 2,000 sheep, and a great number of fat and store cattle, horses, and pigs shown, all of which met with a ready sale, at good prices, the sheep realizing 2s. or 3s. a head more than at Lansdown Fair. Amongst the cattle were some very superior oxen belonging to Messrs. Parker and Wood, for which purchasers were quite eager, six of them realizing £150. There were also some excellent pure Shropshire Down lambs, belonging to Mr. Benjamin Paget—in fact, the whole stock present at the fair was very good.

KNIGHTON FAIR.—The supply of cattle, although small, was quite equal to the demand; and, although lower prices would have been taken, there were few purchasers. In the sheep market there was an average show for this fair, fat sheep fetching from 6d. to 6½d. per lb. Store ewes brought about the same prices as at this fair last year.

LANSDOWN FAIR.—Business generally was dull. Fat cattle and sheep were scarce, and sold pretty well—the former from 10s. to 11s. per score, and the latter at 6½d. to 7d. per lb. The supply of store cattle and sheep was large; but the general shortness of keep tended to check sales, and the great bulk of the supply was driven home unsold. The price of beasts was about the same as at last week's Bristol Market, and of ewes 2s. per score below the rates of last year's fair. There were about the usual number and variety of horses, including some excellent cart-horses and colts; but the trade ruled dull.

LOCKERBY LAMB FAIR.—There was a smaller show of lambs than last year, the deficiency being principally of Cheviots—particularly ewe lambs. Owing to the heavy losses on many stock farms last spring, more of the class were required for breeding purposes. The stock in general was in excellent condition, and were early placed on the ground. The numbers were estimated at from 40,000 to to 50,000 head. There was a large attendance of buyers, both from the South and the district around, also from Galloway. From the backward state of the turnip crop, a slow market and lower prices were anticipated a few weeks ago; but the late fine weather has greatly improved the turnip crop, though still much below an average for this period of the year. Business commenced pretty early, there being a good demand for the best class of half-bred lambs; but holders generally asking last year's prices, sales up to mid-day were not very quick for half-breds, except for top lots. After mid-day the market rather improved, and sales were more readily effected than in the earlier part of the day, except for secondary descriptions; but it was anticipated that even this class would be nearly cleared off. The best lots of half-breds were 6d. to 1s. below last year, though in some cases last year's figure was obtained. For secondary half-breds there was a greater fall, being from 1s. 6d. to 2s. a-head; best, 20s. to 32s. 3d., secondary 14s. to 18s. 6d. Owing to the short supply, Cheviots were in great request, and in some instances were bringing from 6d. to 9d. above last year. In some instances the price was 3d. to 6d. below last year, but for this class last year's price was in general sustained. Top wether lambs 10s. 6d. to 14s. 6d., mid-ewes 11s. to 14s. 9d.; few second lambs are shown at the August market. For cross lambs there was a good inquiry, and the whole were early picked up at a decline of 1s. on last year's prices. The prices for this kind ranged from 14s. to 18s. There was fully a larger show of blackfaced wether lambs than last year; but only one or two lots of mid-ewe lambs were shown. Prices for blackfaced were up 6d. on last year, and prices ranging from 8s. 6d. to 11s. For top wethers the market, on the whole, may be said to be quick for Cheviots, crosses, and blackfaced, and dear and slow for half-breds, with prices for all descriptions better than expected.

MELROSE LAMB FAIR.—There is some difficulty at aiming at the numbers on the ground, but they were computed to be from 60,000 to 65,000. This market was originally intended for Cheviot lambs, but breeders are now turning their attention to bred sheep, three-parts, and half-bred. The trade was dull in the morning for all kinds, arising from the high prices asked; but about eight o'clock the holders gave way a little, when sales were rapidly made. The Cheviot ewe lambs were particularly in demand, and were picked up very readily in consequence of the short supply of this kind on the ground, and the other reason for the demand of this kind was for breeding purposes. Few of this kind of stock were on sale after an early hour in the morning. The Cheviot wether lambs were rather a large show, and there was not the same demand as for ewes. The ewes were entirely sold out, but a few lots of wethers were left unsold. The bred sheep, three-parts, and half-bred were a very large show, and a good number of these kinds were left unsold. At the close of the market it was principally the better-bred class of stock that did not meet with merchants. Cheviot wether lambs ran from 12s. to 18s.—about the same prices as were got last year. For ewes the prices obtained were from 11s. 6d. to 15s., and in one or two instances 16s. was obtained, which would be from 1s. to 1s. 6d. above last year's prices. Three-parts ran from 16s. to 20s. for the general stock, but the better class sold as high as 22s. and 22s. 6d. Half-breds ran from 15s. to 20s. The two last-mentioned kinds have been given as mixed lots of ewes and wethers, and would be about 1s. a-head lower than last year.

NEWTON STEWART LAMB FAIR.—Owing to the extremely unpromising appearance of the turnip crop, buyers were shy of purchasing, and it was not until a late hour of the day that any business was transacted at all. Even at that time it was only to a limited extent, and at prices ranging from 18s. to 22s. each. The greater part were driven off unsold.

PENRITH FORTNIGHTLY MARKET.—We had a good show of cattle, sheep, and lambs, for which the demand was easy, and prices a trifle lower. Number of cattle 30, at 6d. per lb.; sheep and lambs 1,300, at 6½d. per lb.

SHREWSBURY FORTNIGHTLY MARKET. — Fat beef realized, in some cases, 6d. per lb., 5½d. being about the general price. Useful stock and good cows and calves sold well. Fat wethers from 6½d. to 7d. per lb.; store sheep making fair prices. Fat lambs from 18s. to 25s. each. Store pigs very low.

SWANSEA FAIR.—The attendance both of buyers and stock was indifferent, the weather being unfavourable. Prices held a downward tendency, and even then no very great amount of business was transacted. Irish cattle ruled from about £4 to £7, and Welsh from £6 to £8. There were a few prime beasts which realized considerably higher figures. Wool fetched about 1s. to 1s. 4d. per lb.

TEWKESBURY FAIR was small, consequent, no doubt, upon the farmers being occupied in harvesting. The cattle shown sold well. Beef fetched 6d. to 7d.; mutton, 6½d to 7d. per lb.

WISBEACH BULLOCK FAIR.—The supply of stock was much smaller than usual, and the business done was limited, on account of the high prices asked and the scarcity of keeping.

YORK FORTNIGHTLY MARKET.—The supply and demand of all classes of animals was very limited, and, being harvest time, very little business was done. It was said that not more than sixty Irish grazing beasts were sold, and at very low prices. Calving and dairy cows were very slow in demand, at considerable downward prices, and many unsold. Fat beasts were in greater supply than demand, at 6s. 6d. to 7s. per stone; mutton sheep, 6d. to 6½d.; light weights, and superlative in quality, rarely being 6¾d. per lb. A few grazing sheep were exhibited, but very little business was transacted in them.

BISHOPSTOKE CHEESE MARKET, (Thursday last.)—The market was well supplied, there being about 300 tons offered. There was a good attendance of buyers, and about three-fourths changed hands. Prices: Half cowards, 44s. to 52s.; doubles, 51s. to 58s.; Somersets, 60s. to 66s.; Cheddar, 70s. to 74s.

GLOUCESTER CHEESE MARKET.—Although it is generally admitted that in this district the make of cheese this year will fall very short of an average, yet the supply on Monday last was above 200 tons. The trade ruled brisk for the best qualities at advanced prices, and nearly the whole sold at the following prices: Best doubles 64s. to 66s., singles 58s. to 60s. (a few choice lots making 61s.), seconds 50s. to 54s., and skim 28s. to 36s. per cwt.

SALISBURY MONTHLY CHEESE MARKET.—The pitch was between 200 and 250 tons. There was a very good attendance, and during the early part of the morning there was a disposition to buy best qualities in good condition, but afterwards trade became very dull, and a large portion of the pitch remained unsold. Although the quality of the cheese was better, there was a depreciation in price owing to the warm weather. The following were the prices: Best Somersets 60s. to 68s., doubles 40s. to 46s., skims 18s. to 21s.

ENGLISH BUTTER MARKET.

LONDON, MONDAY, August 23.—We do not note any change in the trade, the only active department in it being fresh Butter.

Dorset, fine	116s. to 118s. per cwt.
Ditto, middling	100s. to 106s. „
Devon	110s. to 114s. „
Fresh	12s. to 14s. per dozen.

BELFAST, (Thursday last.)—Butter: Shipping price, 98s. to 104s. per cwt.; firkins and crocks, 10d. to 10¾d. per lb. Bacon, 56s. to 60s; Hams, prime 78s. to 88s, second quality 60s. to 66s. per cwt. Prime mess Pork, 85s. per brl.; Beef, 120s. to 130s. per tierce; Irish Lard, in bladders, 72s. to 76s.; kegs or firkins, 64s. to 66s. per cwt.

CARMARTHEN BUTTER MARKET, (Saturday last.)—Considering that the farmers are busy in securing a magnificent harvest, we had a better supply of butter than could have been expected. The demand was brisk, and the whole brought to the market was cleared off in a few hours, the farmers having no difficulty in making from 98s. to 100s. per cwt. for top quality, and from 95s. to 97s. for secondary. Prices not expected to be lower this season, as the cows are now shrinking in the yield of their milk.

POTATO MARKETS.

BOROUGH AND SPITALFIELDS.

LONDON, MONDAY, Aug. 23.—Our markets continue to be somewhat heavily supplied with most kinds of potatoes, the general quality of which is good. Rather a large business is doing, as follows: Regents, 80s. to 100s., Shaws 60s. to 80s., and inferior 40s. to 50s. per ton. No foreign potatoes came to hand last week. The reports respecting the crop are very favourable.

COUNTRY POTATO MARKETS.—YORK, Aug. 14.—Potatoes sold at 6d. to 7d. per peck, and 2s. per bushel. LEEDS, Aug. 17.—A good supply of potatoes, which sold readily at 7½d. to 8d. per 21lbs. wholesale, and 8½d. to 9d. retail. SELBY, Aug. 16.—Potatoes, wholesale, 6d. per 21lbs. THIRSK, Aug. 16.—Potatoes 5d. to 6d. per stone. SHEFFIELD, Aug. 17.—Potatoes sell at 6s. to 8s. per load of 18 stones, with dull demand. RICHMOND, Aug. 14.—Potatoes 2s. 8d. per bushel. MANCHESTER, Aug. 19.—Potatoes, 6s. 6d. to 9s. per 252lbs.

PERTH POTATO TRADE.—A full supply of Potatoes appears daily in the market. The current prices are 12s. to 16s. per poll of 5 cwt.; and 7d. per peck of 28lbs.—*Perth Courier.*

HOP MARKET.

BOROUGH, MONDAY, Aug. 23.—The improvement in the plantations which we noticed in our last report has been steadily progressing, and the duty has consequently advanced to £250,000, and in one instance has been backed as high as £260,000. The market has been supplied with three pockets of the new growth; *i. e.*, two pockets of Kents, which realized 168s. and 126s., and one pocket of Sussex, which realized 112s. The demand for 1855's has been well supported, but in other descriptions we have little doing.

WORCESTER, (Saturday last.)—We are going on very well here, considering the severe attack of blight we had in the early part of the season, and the duty is variously estimated at from £15,000 to £20,000.

REVIEW OF THE CORN TRADE

DURING THE PAST MONTH.

The month of July was propitious, and brought a few of the first-fruits of harvest, but much depended on the weather of August as to the general gathering. We have now to congratulate the agricultural interest generally, that they have passed this period of anxiety under a favouring Providence, who has again sheltered the produce of the field in the time of its exposure, and permitted the bulk of the harvest to be safely gathered, giving the nation another period of gladness, as well as a fresh incentive to gratitude. Though occasional showers and thunderstorms have in some localities led to a hurried carrying unfavourable to condition, and some injury, especially to barley, these are the exceptions: the greater portion by far was got in fine and dry. As compared with the extraordinary crop of last year, the yield, as well as quality, of the wheat, as far as yet ascertained, is inferior, but we hope an average will be realized. There has been, undoubtedly, much blight in certain places, with very light weight; but some favoured spots claim an equal produce with last season. In foreign countries, as a whole, scarcely an average is expected, especially in the South of Europe and America; but the over-left abundance of 1857, we trust, will fill up any void on emergency. Still the whole world has a lesson of its dependence, in the fact that no one is certain that there will be a month's store on hand on the eve of the next harvest; while it is morally certain that all the other grain crops are below the wheat estimate, and quite fail as a last resort. Up to this period the crop of potatoes has been well spoken of, as to productiveness and freedom from disease; but we are sorry to say that, since the cold rains, complaints on the latter score begin to increase, and we fear the late sorts may yet turn out badly. The maize in Southern Europe has quite recovered; but a good crop, on such a late sowing as became necessary this season in America, seems next to impossible, as the fine weather and frosts must be protracted beyond reasonable calculation to secure it. Field occupation has made thin markets in the country, and with favourable weather prices have given way about 2s. per qr. in the course of the month; but it is to be observed that the deliveries have much increased, and exceed those of last season, though it was the reverse in July. This may be partly attributable to the good prices which were first made of new wheat, and partly to its safe gathering. Should the necessities of some growers make supplies liberal, dull markets, and rather lower rates, for a time, may result; but eventually we expect prices will improve as the inferiority of the new produce becomes evident, and the stores of spring corn get exhausted, especially should foreign supplies fall off. The best crops this year appear to be in Sweden, Denmark, Northern Germany, and England. The following prices are given to show the different markets: France having gradually declined in prices since the completion of harvest, which is reported an ordinary average for wheat, the Paris quotation for good quality is only 41s., Bourgogne to 39s. 6d., the best flour being about 35s. per 280lbs. English. At Marseilles, Marianopoli was quoted 43s. 2d., Berdianski 44s. 3d. per qr.; while at Algiers, in consequence of limited supplies, Spanish orders, and Government purchases for the army, both soft and hard wheat were about 44s. 6d. per qr. In Spain, where the crop is middling, prices were still high, 43s. 6d. per sack being paid at Santander for the best flour, and 49s. 6d. per qr. for French wheat; in the roads, at Barcelona hard Seville wheat was worth 60s. 9d. In Belgium, where lately great excitement obtained, markets have rapidly receded, and now appear settled at 48s. to 52s. At Amsterdam the top price was 53s. 3d.; new at Maestricht brought 48s. per qr., and old 49s. 6d. At Danzic the best high-mixed wheat was worth 53s. per qr. free on board, which is about its value in the London market. At Stettin and Hambro' red wheat was held at 50s. per qr.; Berlin quoted 53s. for fined quality mixed. At Bâle quotations were no higher than 41s. per qr. The last accounts from America noted some improvement in the sale and value of wheat; common Canada white was held at 38s. per qr., Western red winter 40s., Southern red 44s. 8d., and white 46s. 5d. At Odessa prices are higher, in consequence of unfavourable advices from the interior. Ghirka wheat was quoted at 42s., Berdianski 43s. At Berdianski the price was 39s., and markets quiet.

The first Monday's market in London commenced on moderate supplies of wheat, both foreign and English. The supply for the morning from Kent and Essex was very short, and included about 300 qrs. of the new crop, mostly white, and inferior to the growth of last year; the white bringing from 48s. to 54s. per qr., and the red 42s.

to 46s. Old samples sold slowly, the weather for the week previous having been remarkably fine. The foreign trade was also quiet and unaltered. The country markets throughout the week varied very little, some being rather in buyer's favour, and others, as Barnsley and Boston, against them. Liverpool at the Tuesday's market was firm, but lost tone on the following Friday.

The second Monday had a less supply of English wheat, and a larger one of foreign. From Kent and Essex there was a fair arrival, about two-thirds of which consisted of the new crop, which being more plentiful, did not sell on former terms by about 2s. per qr.; fine old also lost value to the extent of 1s. per qr. Foreign factors were not, however, disposed to give way, the continental markets being relatively higher than our own; still, had sales been forced, less money must have been accepted. In the country, trade was equally dull; at Manchester, Hull, Gainsborough, Lynn, and several other places, prices were not lowered; but Bristol and Gloucester were down 1s. per qr., Birmingham and Newmarket declining 1s. to 2s. per qr. Tuesday's advices from Liverpool were firm, but Friday's market was too thinly attended to give certainty to prices.

The third Monday had a diminished foreign supply, and not so much English. The near counties sent up but a moderate number of samples again, chiefly new: the weather continuing favourable, only a few picked parcels of these were quitted at former rates; the secondary sorts remaining on hand at a late hour, though offered at 1s. per qr. reduction. Foreign was in very limited demand, but the rates were as before. Harvest work in the country so thinned the markets, that prices were nominal; the feature prominent in them was, however, a greater scarcity of old wheat, which rather enhanced its value for mixing. Some rain had fallen to delay the harvest in certain localities, but little or no injury had resulted to the crops. Liverpool was dull on Tuesday; but an unexpected demand on Friday made prices 1d. per 70 lbs. dearer. The weather in Scotland was mostly fine; but there was some demand for good wheat, both at Edinburgh and Glasgow, at former rates.

The fourth Monday opened on a greater plenty of foreign, with about the average supply of English. From Essex, in the course of the morning, there were but few samples; but this was made up by a greater abundance from Kent. English factors, therefore, on a return of fine weather, after a heavy rain on the previous Saturday, were unable to quit at the former prices; this led to some concession at the Kentish stands, which enabled the hoymen to clear the principal part of their bulk, but inferior lots were sold rather cheaper. The foreign trade was also heavy, but for picked lots the previous quotations were realized. The country reports did not respond to the London dull accounts, scarcely any place of importance reporting lower prices; while Liverpool, Boston, and Lynn, and some other towns, noted a small advance. Market Rasen and Maldon were 1s. to 2s. higher.

The arrivals in the port of London in the first four weeks of August were 21,933 qrs. English wheat, and 60,738 qrs. foreign, giving an average weekly supply of 20,665 qrs., showing a weekly aggregate increase of 1,842 qrs. over the previous month. Of flour, the receipts in the same time were 54,341 sacks English, 10,946 barrels 145 sacks foreign. This shows a steady decrease in the French imports, which in June were only one-half of what they were in May, while July and August together were only 693 sacks. As compared with the four weeks of July, August shows a falling off in English flour of 11,999 sacks, and in American sorts 5,656 brls. The exports were trifling, viz., 444 qrs. wheat, and 843 cwt. flour.

The flour trade, notwithstanding the want of water, which lessened the country supply, has very little varied in the course of the month. The first Monday made 32s. per sack—the price of Norfolks. The third gave way 1s. per sack, which has not since been recovered, though the intermediate market-days were occasionally affected by heavy rains. The town prices have been settled all through, 43s. per sack being the top price. Good foreign has become scarce, the recent arrivals from America having given great dissatisfaction both in quality and condition.

The barley trade has been very quiet. The few new malting samples that appeared on the first Monday brought 40s. per qr., but were not first-rate, the season having been too dry to give plumpness and kindliness to the grain. The whole crop is thinner than usual, and apparently below an average. As Europe generally has suffered, the Saale districts and France included, there appears little promise of a good supply fit for malting; and, when the season comes in, it seems probable that suitable samples, from their scarcity, will increase in value. Of grinding qualities there has been a sufficiency for the demand; but the better sorts have rather improved in value, being cheaper than oats or any other grain. Though scarcely one market-day in the course of the month has been brisk enough to enable factors to quote higher rates, the low sorts have gradually increased in price fully 1s. per qr., and, excepting in gluts, seem more likely to advance than to be lower. The imports into London for four weeks were 937 qrs.

only of English, and 34,165 qrs. foreign. The quantity in granary is not large, and has rather diminished this month, in consequence of the moderate imports.

The malt trade has been steady throughout the month, fine qualities being more in favour at the close, and prices rather against buyers.

The importations of foreign oats during the month have been extraordinary, reaching in four weeks to nearly a quarter of a million qrs., with prices very little affected, the large export demand of July being followed by an equally important drain from the country markets. The arrivals have been mostly Russian, the ports of Archangel, Petersburg, Cronstadt, and Riga having all contributed freely to this market; those in the Baltic having also to execute large orders for Holland and Belgium, where the crops are very deficient. Our own, too, though the quality is said to be good, is below an average; so, unless Russia can keep on exporting at an equal pace, there seems no chance of lower rates, excepting in occasional gluts, all through the season. The first Monday had the heaviest supply known for years; but the value of Russian samples then decreased only 6d. per qr., and this was fully recovered on the second Monday, and kept up till the fourth, when Russian sorts again gave way, on a heavy supply, 6d. per qr. The imports in four weeks were 246,914 qrs. foreign, 2,623 qrs. Irish, 2,131 qrs. Scotch, and 3,388 qrs. of home growth—in all, 255,056 qrs., giving a weekly average of 63,764 qrs. Last March, the total weekly average was 12,213 qrs., or less than one-fifth; and yet the price then rose only 6d. per qr. on the last Monday.

Both beans and peas having very much failed as crops, they have maintained their value without an active demand. The Egyptian supplies of the former have hitherto been very small, including some of the present year's produce, which, by the samples received, does not excel. The arrivals of old English beans, though rather increased, have therefore been steadily placed at full rates. The new samples of winter appear more than usually eaten by the weevil, and the weight consequently reduced. The new peas are sounder, but very small—both boilers and those for hog feed. White boilers, for such an inferior crop, appear disproportionately low-priced, and we expect, as the season comes on, must advance, as reports from the Baltic are unfavourable, and Canada is said only to have an average crop; but maples and dun sorts being dear, may be supplanted by maize and low barley, and even blighted wheat. Of beans, the imports for four weeks were 2,061 qrs. English, 4,525 qrs. foreign; of peas, 1,304 qrs. English, 4,126 qrs. foreign.

The linseed trade has been without any change; the high price of seed, as compared with oil, determining crushers rather to stop their mills than buy freely. Cakes alone have sold well, the rains not having been sufficiently plentiful to give enough keep to farmers and graziers, and its fattening properties, as well as service to the soil, being better understood than formerly. The London imports were 13,028 qrs., and the exports 6,013 qrs. in four weeks.

The seed trade generally has been entirely without excitement. New trifolium has advanced from 25s. to 45s. per cwt., in consequence partly of the great rise in France, the quality there being much below an average from drought. New white mustard-seed has been reduced in price from the time it first appeared, 17s. per bushel being a top price, and difficult to realize. New brown a still slower sale at 12s. per bushel. New winter tares being scarce, have been held at 12s. per bushel—no new canary-seed having yet appeared, this article has kept its high price, from the limited receipts. Cloverseed has been quiet at last month's improvement, the crops here being still better reported than those abroad, though both in Germany and France, as well as Holland, there has been a better prospect of seed since the plentiful rains. Trefoil has been steady at fully former rates for new samples. Hempseed has maintained its value, but rapeseed has been more difficult to sell. Carraway-seed and coriander-seed have sold in retail without quotable change of price.

CURRENCY PER IMPERIAL MEASURE.

Shillings per Quarter

Wheat, Essex and Kent, white	41 to	50	new	44 to	51
,, red	38 to	45	new	42	48
Norfolk, Linc. and Yorks., red	39	43	new	40	46
Barley, malting, new	— to	36	Chevalier, new	38	40
Distilling, new	29	32	Grinding	25	30
Malt, Essex, Norfolk, and Suffolk	56	64	fine	66	68
Kingston, Ware, and town made	56	64	,,	66	68
Brown	52	54		—	—
Rye new	—	—		30	36
Oats, English, feed	23	28	Potato	27	35
Scotch, feed	23	27	31.. Potato	28	35
Irish, feed, white	22	25	fine	26	32
Ditto, black	22	24	,,	—	25
Beans, Mazagan	37	39	Ticks	37	39
Harrow	37	42	Pigeon	41	47
Peas, new, white boilers	40	47	Maple 44 46.. Grey	42	44
Flour, per sack of 280lbs., Town, Households 36s., fine				40	43
Country	31	33	Households	31	35
Norfolk and Suffolk, ex-ship				30	31

FOREIGN GRAIN.

Shillings per Quarter.

Wheat, Dantzic, mixed	45	--	high do. — — extra	—	53
Konigsberg	40	48	,, — —	—	—
Rostock	45	—	fine 48 —	—	—
American, white	43	51	red 42 47	—	—
Barley, grinding	23	28	Distilling	30	31
Oats, Dutch, brew, and Polands	25	31	Feed	24	28
Danish and Swedish, feed	25	27	Stralsund	26	29
Russian				23	25
Beans, Friesland and Holstein				36	42
Konigsberg	36	40	Egyptian	35	37
Peas, feeding	42	44	fine boilers	44	47
Indian Corn, white	34	36	yellow	34	36
Flour, per sack French	33	37	Spanish	—	—
American, per barrel, sour	20	22	sweet	24	25

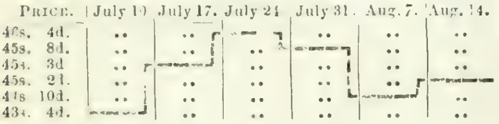
IMPERIAL AVERAGES.

For the last Six Weeks:	Wheat. s.	d.	Barley. s.	d.	Oats. s.	d.	Rye. s.	d.	Beans. s.	d.	Peas. s.	d
July 10, 1858	43	4	29	11	26	3	28	11	42	3	44	8
July 17, 1858	45	3	30	4	26	5	30	8	43	3	44	5
July 24, 1858	46	4	29	9	27	11	35	4	44	4	44	11
July 31, 1858	45	8	30	6	28	5	31	2	45	3	43	7
Aug. 7, 1858	44	10	31	3	27	6	31	9	45	7	43	9
Aug. 14, 1858	45	2	31	3	28	3	35	4	46	7	43	11
Aggregate average	45	1	30	6	27	6	32	2	44	6	44	2
Sametime last year	61	3	38	6	27	10	40	6	46	2	42	3

COMPARATIVE AVERAGES—1858-57.

From last Friday's *Gaz.*		s.	d.	From *Gazette* of 1857.		s.	d.
Wheat......	95,664 qrs.,	45	2	Wheat......	78,060 qrs.,	59	2
Barley......	1,686 ..	31	3	Barley......	1,422 ..	40	0
Oats........	5,190 ..	28	3	Oats........	8,237 ..	27	8
Rye	230 ..	35	4	Rye	250 ..	40	5
Beans	2,134 ..	46	7	Beans	2,745 ..	47	1
Peas........	811 ..	43	11	Peas	1,738 ..	40	10

FLUCTUATIONS IN THE AVERAGE PRICE OF WHEAT.



MONTHLY RETURN.

An Account shewing the Quantities of Corn Grain, Meal, and Flour, imported into the United Kingdom, and admitted to Home Consumption, in the month of July, 1858.

Species of Corn, Grain, Meal, and Flour.	Imported from foreign Countries.			Imported from British Possessions out of Europe			Total.		
	qrs.	bush.		qrs.	bush.		qrs.	bush.	
Wheat	438390	0		39683	6		478073	6	
Barley	137572	4		..			137572	4	
Oats	175306	0		3292	3		178598	3	
Rye	2887	3		..			2887	3	
Peas	9383	6		7914	2		17298	0	
Beans	20943	1		..			20943	1	
Maize or Indian Corn ..	156763	1		770	2		157533	3	
Buck Wheat	424	5		..			424	5	
Beer or Bigg	..			..			..		
Total of Corn and Grain	941670	4		51660	5		993331	1	
	cwts.	qr.	lb.	cwts.	qr.	lb.	cwts.	qr.	lb.
Wheat Meal and Flour.	343435	1	25	120295	3	1	463731	0	26
Barley Meal	..			..			..		
Oat Meal	118	2	8	1	3	0	120	1	8
Rye Meal..............	671	1	2	..			671	1	2
Pea Meal..............	..			..			..		
Indian Meal	183	0	9	10	2	0	193	2	9
Buck Wheat Meal......	2	3	14	..			2	3	14
Total of Meal and Flour.	341411	1	2	120308	0	1	464719	1	3

PRICES OF SEEDS.

BRITISH SEEDS.

Cloverseed, red —s. to —s., extra —s., white – s. to – s.
Trefoil .... — s. to —s.
Tares, Winter, new, per bushel ......0s. 0d. to 0s. 0d.
Tares, Spring, per bushel .... 12s. 0d. to 13s. 0d.
Mustardseed, per bush., new 15s. to 17s., brown 10s. to 12s.
Coriander, per cwt.......................... 20s. to 26s.
Canary, per qr .... 80s. to 95s.
Linseed, per qr., sowing —s. to —s...crushing 66s. to 68s.
Linseed Cakes, per ton.............. £9 10s. to £10 10s
Rapeseed, per qr. .... 70s. to 72s.
Rape Cake, per ton........................£5 10s. to £6 0s.

FOREIGN SEEDS, &c.

Cloverseed, red 40s. to 46s.,.......... white 50s. to 60s.
Trefoil, ... 17s. to 18s.
Hempseed, small, per qr. .... Dutch 42s. to 47s.
Coriander, per cwt. .... 17s. to 26s.
Carraway ,, ... 44s. to 46s.
Linseed, per qr., Baltic 58s. to 62s....Bombay 60s. to 62s.
Linseed Cake, per ton.............. £9 10s. to £11 0s.
Rapeseed, Dutch............................ 68s. to 72s.
Rape Cake, per ton...................... £5 0s to £6 0s.

WOOL MARKETS.

LONDON, Monday, Aug. 23.—There is a moderate business doing in fine home-grown wools, and prices are fully supported. In long wools very little is passing; nevertheless the quotations rule about stationary. The supply on offer is seasonably large; but we understand that large buyers are shortly expected from Belgium.

Per pack of 240lbs.

		£	s.		£	s.
Fleeces—	Southdown Hogs............	£15	0	to	£16	0
Do.	Half bred Hogs	11	0		15	0
Do.	Kent	15	0		16	0
Do.	Southdown Ewes and Wethers	14	0		14	10
Do.	Leicester do	13	0		13	10
Sorts—	Clothing, picklock	16	0		16	10
Do.	Prime and picklock	15	0		15	10
Do.	Choice......................	13	10		14	0
Do.	Super......................	12	0		13	0
Do.	Combing—Wether matching ...	15	10		16	10
Do.	Picklock	14	0		15	0
Do.	Common	12	0		12	10
Do.	Hog matching	17	0		18	0
Do.	Picklock matching..........	15	0		15	10
Do.	Super do.	12	10		13	0

BRADFORD WOOL MARKET, (Thursday last.)—Wool: There is a fair amount of business passing, and prices for bright-haired lots are on the ascendant. Wools more adapted for coburgs and soft goods do not command such good sale. Noils and brokes are inquired for, but prices continue very low. Yarns: Spinners continue well engaged to order, and manufacturers complain of the deficient deliveries, several spinners having more contracts to meet than their production is equal to. Cotton yarns continue in fair demand. Pieces: There is a fair attendance of merchants, who, having most of them cleared out the bulk of their stocks, are endeavouring to replace them on as favourable terms as they are able. Manufacturers continue well engaged to order, and better prices are realized.—*Bradford Observer*.

LEEDS (English and Foreign) WOOL MARKETS, Aug. 20.—The demand for English combing wool is not diminished, but prices are not materially altered, though in some instances quoted higher. In colonial wool there is a steady demand, and prices are firm. There is a good demand for low foreign wool, but prices are not higher.

LIVERPOOL WOOL MARKET, Aug. 21.

English.—For all kinds there is an unabatedly good demand, particularly for those of bright-haired descriptions; and sales can be very freely made at late quotations, but higher rates being demanded, the transactions have not been to the extent that otherwise would have been the case.

		s.	d.		s.	d.
Laid Highland Wool per 24 lbs.....		10	0	to	11	0
White Highland do.................		12	0		13	0
Laid Crossed	do..unwashed	12	0		13	0
Do.	do..washed........	13	0		15	0
Laid Cheviot	do..unwashed......	14	0		16	0
Do.	do..washed........	16	0		18	0
White Cheviot	do..washed........	24	0		28	0

MANURES.

PRICES CURRENT OF GUANO, &c.

	£	s.	d.		£	s.	d.
PERUVIAN GUANO,(per ton, for 30 tons) nominal	£12	5	0	to	£0	0	0
Do. Do. ....(under 30 tons)....	13	0	0		0	0	0
BOLIVIAN GUANO ....none	0	0	0		0	0	0

ARTIFICIAL MANURES, &c.

	£	s.	d.		£	s.	d.		£	s.	d.		£	s.	d.
Nitrate Soda (per ton)...	£18	0	0	to	£20	0	0	Sulph. of Copper or Roman Vitriol, for Wheat steeping......	45	0	0	to	47	0	0
Nitrate Potash or Saltpetre	29	0	0		30	0	0	Salt	1	0	0		1	10	0
Sulpht. Ammonia	17	0	0		18	0	0	Bones, Dust, per qr.	1	5	0		1	6	0
Muriate ditto ...	27	0	0		28	0	0	Do. ½-inch......	1	4	0		1	5	0
Superphospht. of Lime....	5	10	0		6	0	0	Oil Vitriol, concentrated, per lb........	0	0	1		0	0	0
Soda Ash, or Alkali	9	0	0		10	0	0	Do. Brown.....	0	0	0¾		0	0	0
Gypsum.........	2	0	0		2	10	0								
Coprolite.......	3	10	0		3	15	0								

OIL-CAKES.

	£	s.	d.		£	s.	d.		£	s.	d.		£	s.	d.
Linseed-cakes, per ton—								Marseilles......	£9	10	0	to	£10	0	0
Thin American, in brls. or bags	£10	7	6		£10	15	0	English.........	10	10	0		0	0	0
Thick do. round (none)					0	0	0	Rape-cakes, pr ton	6	0	0		6	10	0

John Keen, 35, Leadenhall-street,
(Late Odams, Pickford, and Keen.)

Agricultural Chemical Works, Stowmarket, Suffolk.

		£	s.	d.
Prentice's Cereal Manure for Corn Crops..................	per ton	£8	10	0
Prentice's Turnip Manure	,,	7	0	0
Prentice's Superphosphate of Lime	,,	6	10	0

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THE FARMER'S MAGAZINE.

OCTOBER, 1858.

PLATE I.

A PRIZE DEVON OX.

This ox, bred and fed by Lord Leicester, at Holkham, was calved on the 30th of October, 1853. His sire was Musician (255), grandsire Quartley's Prince of Wales (105), dam Cinderella (71), and grandam Caroline (60).

At the Birmingham Show, in December, 1856, he took the first prize of £10, with the silver medal for the breeder, as the best Devon steer under three years and three months old. At Poissy, in the spring of 1857, he received a prize of 1,000f. At the Norfolk Agricultural Society's meeting, in June 1857, he took the prize of £5, with the silver medal, as the best fat steer of any breed. At the Birmingham Show, in December 1857, he was awarded the first prize of £10 as the best Devon ox, the extra prize of £20 as the best of all the Devons, and Lord Ward's prize of £25 as the best ox *bred* and *fed* by an exhibitor, and the silver medal for the breeder.

This was altogether an admirable beast, most symmetrical in form and fine in quality. Indeed, his symmetry was considered the most perfect of any animal we have now had "out" for many years. At the Birmingham Meeting, in 1856, he was one of the three ultimately selected by the judges as worthy of the gold medal, and was very near taking it; the first time a Devon ever came so close on the chief honors in the Midland counties.

Alma Mater claimed him for the sacrifice—*procumbit humi bos!* Mr. Stevens, of Oxford, must close this sad eventful history, and tell how mighty Dons and jovial Fellows dallied over the sweet short-rib and prime sirloin of Holkham's famous ox.

PLATE II.

THE FILLER.

The Filler has a good deal of the character of the Clydesdale about her, and the scene altogether a Scotch look. What with the girl petting her favourite, the old bearded mountaineers, and the more picturesque than tidy stabling, the make-up of a very pleasing picture has been obtained. In a few years hence it may be more difficult to find. The steam-plough is to out-pace even the smart-actioned horses of the Clyde. The bothies and shealings have latterly been subject to considerable improvement, and modern Agriculture may yet find shoes and stockings for her Highland Lassie. More machinery and better buildings will promise to make sad havoc of the poetry even of a hill farm, and what may look very well in a picture may hardly pay in practice. "Are not the cattle beautiful?" asked a friend of an agriculturist, over one of Claude's master-pieces. "Well, they may be beautiful," responded the other, "but I should be very sorry to have such a ragged lot about my place." Our artist's make-up may be open to some such similar a criticism.

THE LOCHEND SEWAGE IRRIGATION.

BY CUTHBERT W. JOHNSON, ESQ., F.R.S.

It was during the months of August and September of this year that I had for the first time an opportunity of visiting Scotland. The result of a month's tour, chiefly amidst the magnificent scenery of its Western Islands, leads me to warmly commend a similar tour to the farmers of the southern portion of our island. And it may be serviceable to them if I give the outline of my route before I proceed to glance at certain great objects with regard to the management of their grass lands, well worthy of the careful consideration of the farmers of warmer and drier districts. My course was from London to Glasgow by the railway. Thence by steamer to Rothesay in the Isle of Bute (there are several daily boats that carry you the forty miles down the noble Clyde for 1s. 6d.). From Rothesay by steamer, through the very lovely Kyles of Bute, viâ the Crinan Canal to Oban, where there are excellent hotels. From Oban, by fine steamers, round the iron-bound shores of the Isle of Mull to Iona and Staffa, back to Oban. Then to the magnificent Vale of Glencoe and the Caledonian Canal, whence I returned to Rothesay. From Rothesay, up the Clyde, to Bowling, thence by rail to Loch Lomond (by far the noblest lake of our island), then by a lake steamer to Tarbert and Inversnaid. By coach, some four miles, from the pier at Inversnaid, to Loch Catrine; by steamer along this beautiful little lake to the entrance of The Trossachs. Through The Trossachs by coach to Stirling, thence by steamer down the Forth to Edinburgh.

The English agriculturist, who leaves his warm vale and his elegant home for the colder climate of the North, may rest assured that he will find in Scotland almost every home comfort, and out of doors many things which it would be well if we could successfully imitate in our own parishes. There is in this great northern portion of our island a general intelligence, the result of universal education, fraught with the best results. Every ploughboy, even, that I asked a question of, replied in good language, with readiness and clearness: there was no appearance of anything like ignorance, and its natural child, destitution. I did not see a single beggar during my month in Scotland, and only two intoxicated persons, and they were both in Glasgow. Turn where I would, in their cities or on the mountain slopes of Scotland, there were economy and good sense displayed. The counties through which I chiefly passed were not the best distinguished for their agriculture, still their turnip crops were almost always good, and, like their oat crops, much superior to ours—in fact, their chief corn crop is oats; and in September of this year, the larger portion of it, in Bute and the Western Islands of Scotland, was only then turning yellow, whilst a good deal was quite green. There were a few barley fields dotted here and there; I noticed one crop of barley even in Iona; and a little wheat in the warmer nooks and sunniest inclines. But pasturage is the great object throughout almost all the districts through which I passed. Even on the more arable farms, the common course is a fallow, turnips, oats, grass seeds for two years; then oats, wheat or barley; then a fallow. The breeding of sheep and cattle is a chief object. These are seen tenanting all the mountain sides of the noble Western Islands and the lochs I passed through; almost all seemed of good breeds, and in thriving condition. Of the management of these I shall on another occasion enlarge; but in this paper I propose to confine my remarks to the result of my visit to a portion of the sewage-irrigated meads of Edinburgh. I do so (although there is much that I have to remark on other portions of Scotch agriculture), since there is at length a prospect of vast operations being undertaken for the disposal of the sewage of London. At such a period, every fact that bears upon the importance of employing in the irrigation of grass the enormous amount of the metropolitan sewage should be strenuously urged upon its commissioners and Her Majesty's Ministers. Now, the Edinburgh meads appear to me to afford most valuable evidence; they prove what many persons feel inclined to doubt; they dispel more than one myth conjured up by the timid, the ignorant, and the indolent.

I was for several reasons, then, very glad when in Edinburgh (the queen of our northern cities) to pay a visit to some of the celebrated water meads, of which we have all heard so much. It was by the kindness of Mr. Thomas Duncan, of the Highland Society's office (Mr. Maxwell was, unfortunately, absent from Edinburgh), and Mr. Stevenson, of the *North British Agriculturist* office, that I was directed to the farm at Lochend, belonging to the Earl of Moray, of which Mr. Taylor is the manager for Mr. Scott, the tenant.

Visiting Lochend on the 9th of September, just after the great annual meeting of the Highland Society, and in a month of general holiday-making, it was hardly a matter of surprise that so many persons whom I much wished to see were from home. I found, however, in the absence of Mr. Taylor, the keeper of the water meads (William Brunton), who readily gave me all the information in his power. He informed me and my friend and companion that he has had the care of these valuable sewage-irrigated meads for about eleven years; that he spends all his days amidst them; that he enjoys excellent health—indeed, to use his own words when describing himself, "there is not a healthier man in the world." The meads are situated only about three-quarters of a mile from Edinburgh, are only separated by a road from numerous dwelling-houses, are about forty acres in extent, and are irrigated entirely by the sewage of Edinburgh flowing from the sewers of the city by its own gravity. There are two arable fields, of which I shall presently speak, also irrigated by the sewage, but these require the aid of a pump worked by a water-wheel, to raise the water to the necessary elevation; these are about ten acres in extent.

It will be well, before we examine the mode of irrigation employed, if we first examine the present money value of these meads. The keeper told us that these meadows are chiefly held, as tenants by the season (which ends on the first of October) by the Edinburgh cow-keepers; that they were annually let by auction, or "rouped;" that they varied in value, some choice acres fetching nearly £50 per Scotch acre (English acre 4,840 square-yards, the Scotch acre 6,150), but that the *average* rent is about £28 to £30 per acre!

The sewage (it closely resembled, in appearance and in its odour, the sewage of London and Croydon) is used in its normal state; there are no settling pits or ponds; no need of diluting it: they prefer it when it flows to them in dry weather. "The rain," said Brunton, "They makes small-beer of it." *The warmer the weather, the hotter the season, the more grass is produced at Lochend.*

They commence watering in February; the sewage is then allowed to flow on to the meads for about a day and a night, and no longer. This watering is repeated every ten or fourteen days, until the 1st of October, even when the grass is growing; only, when this is the case, care is required, so that the sewage shall percolate gently and thinly through the grass. After the sewage has passed over the Lochend meads, it flows onwards to the celebrated meads of Craigintinny: there it is again used in irrigating the great grass meads of that place; but as my informant said, "it is there not so good as it is with us, but still they are right glad to have it, and more too of the same sort if they could get it."

They cut the grass at Lochend *four* times, and sometimes *five* times a-year. That which I saw cutting on the 9th of September, 1858, was a capital heavy crop, not more than about twelve or fourteen inches in height; but it was thickly matted together and laid, and so thick that the lower portion of the stems was rather of the yellow appearance presented by very heavy crops in our own meadows, and as my companion, the occupier of some Surrey grass land, of average quality, remarked, "it was twice as heavy a crop as he could cut at the best season of the year." There were at this time several carts loading with the fresh-cut grass, and carrying of it away for the soiling of the Edinburgh milch cows. It sometimes, it seems, grows "nearly a yard high." I could not but feel, when I saw these things, that Brunton was not far from the truth when he observed of the sewage, "Folks down South don't know the value of it."

On the north side of these fields the sloping gardens of a mansion-house descend to the boundary of the Lochend meadows; an open stream of sewage circulates around its garden wall. On either side of these gardens are situated the arable fields, which are watered by the pump and water-wheel, to which I have already referred. The field nearest to Edinburgh had, when I visited it, a very luxuriant crop of Italian rye-grass, sown this year after a good crop of early potatoes; this grass was nearly ready for cutting, immediately after which it is irrigated with the sewage, conveyed through iron pipes, furnished with hydrants, and spread about through hose. In 1859 this will yield five good cuttings of rye-grass, and will be immediately and copiously irrigated after every cutting.

They dung, and give a little guano, it seems, for the potatoes, which the keeper informed us he heard valued this year at £25 an acre; but they apply nothing but the sewage to the Italian rye-grass. "It needs nought but that," observed Brunton. The rye-grass is grown, and irrigated for two years, after which it is ploughed up for another crop. The rye-grass, we are informed, would not continue thus productive for more than two years.

As the mansion-house, to which I have referred, is in immediate juxtaposition with the Lochend sewage-irrigated meads, which bound its gardens on the S.E. and S., and by the occasionally sewage-irrigated arable lands on the E. and W., I considered it very desirable to ascertain the opinion of its tenant, as to the healthiness or otherwise of the locality. I found that the mansion and its extensive gardens had been only recently hired, through the benevolent exertions of Dr. Guthrie and others of the free church of Edinburgh, for the board, lodging, clothing, and education of the orphan scholars of the ragged schools of that city. Upon calling at the well-conducted house, Mr. Macdonald, the intelligent master of "the Marionville Industrial School," readily afforded me every information in his power. "The house contains," he said, "at the present time, about thirty inmates." He introduced me to the school-room, where about fifteen healthy-looking boys were at their lessons; showed me over the dormitories; pointed out to me "a sick-room;" but he added, "We have had no occasion to use it yet." The school was opened, it seems, on the 1st of July. All the inmates of the house have, during this time, enjoyed general good health. He employs the boys occasionally to carry the sewage from the open sewer, which flows at the bottom of the grounds, to water the garden plots. He sometimes perceived a peculiar odour arising from the Lochend meads, but upon the whole had no reason to apprehend any injurious effects.

Here, then, has existed for a series of years, within three-quarters of a mile of Edinburgh, a field of about forty acres (and still larger sewage-irrigated fields are at not much greater distances from that city), which not only demonstrates by its enormous rent the value of sewage employed in the irrigation of grass land, but at the same time shows that these irrigations may be carried on, not only with advantage to the public, but with very little annoyance to those who dwell immediately around the very land on which the sewage flows.

It is very true, that no one with whom we have to do proposes to thus employ the metropolitan sewage in such close proximity to any densely populated place; but the result of the Edinburgh meadow experience does seem to prove that if the whole of the London sewage was conveyed at a sufficiently high *level* to a considerable distance from the metropolis—that then that huge mass of liquid manure, if employed over any extent of grass lands, (the best, the most perfect, of all deodorizers), would assuredly not only cause the growth of great crops of grass, but be not productive of such disagreeable or noxious results as it now causes by being mingled with, and allowed to decompose in, the waters of the Thames.

INFLUENCE OF LIGHT ON ANIMAL AND VEGETABLE LIFE.

Of all the elements which play a high part in the material universe, the light which emanates from the sun is certainly the most remarkable, whether we view it in its sanitary, scientific, or æsthetical relations. It is, to speak metaphorically, the very life-blood of nature, without which everything material would fade and perish. It is the fountain of all our knowledge of the external universe, and it is now becoming the historiographer of the visible creation, recording and transmitting to future ages all that is beautiful and sublime in organic and inorganic nature, and stamping on perennial tablets the hallowed scenes of domestic life, the ever-varying phases of social intercourse, and the more exciting tracks of bloodshed and of war, which Christians still struggle to reconcile with the principles of their faith.

The influence of light on physical life is a subject of which we at present know very little, and one, consequently, in which the public, in their still greater ignorance, will take little interest; but the science of light, which, under the name of *Optics* has been studied for nearly two hundred years by the brightest intellects in the Old and New World, consists of a body of facts and laws of the most extraordinary kind—rich in popular as well as profound knowledge, and affording to educated students, male and female, simple and lucid explanations of that boundless and brilliant array of phenomena which light creates, and manifests, and develops. While it has given to astronomy and navigation their telescopes and instruments of discovery, and to the botanist, the naturalist, and the physiologist their microscopes, simple, compound, and polarising, it has shown to the student of nature how the juices of plants and animals, and the integuments and films of organic bodies, elicit from the pure sunbeam its prismatic elements—clothing fruit and flower with their gorgeous attire, bathing every aspect of nature in the rich and varied hues of spring and of autumn—painting the sky with azure, and the clouds with gold.

Thus initiated into the mysteries of light, and armed with the secrets and powers which science has wrested from the God of Day, philosophers of our own age have discovered in certain dark rays of the sunbeam a magic though invisible pencil, which can delineate instantaneously every form of life and being, and fix in durable outline every expression, demoniacal or divine, which the passions and intellects of man can impress upon the living clay. They have imparted to the cultivators of art their mighty secret, and thousands of travelling artists are now in every quarter of the globe recording all that earth, and ocean, and air can display—all that man has perpetrated against the strongholds of his enemies, and all that he has more wisely done to improve and embellish the home which has been given him.

A branch of knowledge so intimately connected with our physical well-being, so pregnant with displays of the Divine wisdom and beneficence, and so closely allied in its æsthetical aspect with every interest, social and domestic, might have been expected to form a part in our educational courses, or, through the agencies of cheap literature and popular exposition, to have commanded a place in the school and in the drawing-room, and to have gilded, if not to have replaced, the frivolities of fashionable life. Such expectations, however, have not been realized. Men of science who are much in the society of the educated world, and especially of those favoured classes who have the finest opportunities of acquiring knowledge, are struck with the depth of ignorance which they encounter; while they are surprised at the taste which so generally prevails for natural history pursuits, and at the passion which is universally exhibited even for higher scientific information which can be comprehended by the judgment and appropriated by the memory. The prevailing ignorance, therefore, of which we speak, is the offspring of an imperfect system of education, which has already given birth to great social evils—to financial laws unjust to individuals, and ruinous to the physical and moral health of the community. If the public be ignorant of science, and its applications, in their more fascinating and intelligible phases; if our clergy, in their weekly homilies, never throw a sunbeam of secular truth among their people; if legislators hardly surpass their constituents in these essential branches of knowledge, how can the great interests of civilization be maintained and advanced? how are scientific men to gain their place in the social scale? and how are the material interests of a great nation, depending so essentially on the encouragement of art and science, to be protected and extended? How is England to fare, if she shall continue the only civilized nation which, amid the perpetual struggles of political faction, never devotes an hour of its legislative life to the consideration of its educational establishments and the consolidation of its scientific institutions?

Impressed with the importance of these facts, and in the hope that some remedy may be found for such a state of things, we have drawn up the following article, in order to show how much useful and popular and pleasing information may be learned from a popular exposition of the nature and properties of the single element of light, in its sanitary, its scientific, and its artistic or æsthetical relations. Should our more intelligent readers rise from its perusal with information which they had not anticipated, and which they had previously regarded as beyond their depth, our labour in preparing it will be amply rewarded, and we shall hope to meet them again in other surveys of the more popular branches of science.

I. In attempting to expound the *influence of light as a sanitary agent,* we enter upon a subject which, in so far as we know, is entirely new, and upon which little information is to be obtained; but, admitting the existence of the influence itself, as partially established by observation and analogy, and admitting too the vast importance of the subject in its personal and social aspects, we venture to say that science furnishes us with principles and methods by which the blessings of light may be diffused in localities where a cheering sunbeam has never reached, and where all the poisons and malaria of darkness have been undermining the soundest constitutions, and carrying thousands of our race prematurely to the grave.

The influence of light upon vegetable life has been long and successfully studied by the botanist and the chemist. The researches of Priestley, Ingenhousz, Sennebier, and De Candolle, and the more recent ones of Carradori, Payen, and Macaire, have placed it beyond a doubt that the rays of the sun exert the most marked influence on the respiration, the absorption, and the exhalation of plants, and, consequently, on their general and local nutrition. Dr. Priestley tells us, " It is well known that *without light* no plant can thrive; and if it do grow at all in the dark, it is always *white,* and is in all other respects in a sick and weakly state." He is of opinion that healthy plants are in a state similar to sleep, in the absence of light, and that they resume their proper functions when placed under the influence of light and the direct action of the solar rays.

In the year 1835, D. Daubeny communicated to the Royal Society a series of interesting experiments on the action of light upon plants, when the luminous, calorific, or chemical rays were made preponderant by transmission through the following coloured glasses or fluids:—

	Light.	Heat.	Chemical Rays.
Transparent glass ..	7	7	7
Orange do. ..	6	6	4
Red do. ..	4	5	6
Blue do. ..	4	3	6
Purple do. ..	3	4	6
Green do. ..	5	2	3
Solution of ammonia, sulphate of copper ..	2	1	5
Port wine	1	3	0

The general result of these experiments is thus given by their author: " Upon the whole, then, I am inclined to infer, from the general tenor of the experiments I have hitherto made, that both the exhalation and the absorption of moisture by plants, so far as they depend upon the influence of light, are affected in the greatest degree by *the most luminous rays,* and that all the functions of the vegetable economy which are owing to the presence of this agent, follow, in that respect, the same law."

This curious subject has been recently studied in a more general aspect by Mr. Robert Hunt, who has published his results in the Reports of the British Association of 1847. Not content with ascertaining, as his predecessors had done, the action of the sun's white and undecomposed light upon the germination and growth of plants, he availed himself of the discovery of the chemical or invisible rays of light, and sought to determine the peculiar influence of these rays and of the various colours of solar light upon the germination of seeds, the growth of the wood, and the other functions of plants.

In order to explain the results which he obtained, we must initiate the reader into the constitution of the white light which issues from the sun. If we admit a cylindrical beam of the sun's light through a small circular aperture into a dark room, it will form a round white spot when received on paper. Now this white beam consists of *three visible* coloured beams, which when mixed, or falling on the spot, make white, and of two *invisible* beams, one of which produces heat, and the other a chemical influence called actinism, which produces chemical changes, the most remarkable of which are embodied in photographic pictures. The whole sunbeam, therefore, contains *luminous* or colour-making rays, *heating* rays, and *chemical* rays.

When white light, therefore, acts upon plants, we require to know which of these rays produce any of the remarkable changes that take place; and as it is not easy to insulate the different rays and make them act separately, the inquiry is attended with considerable difficulty. By using coloured glasses and coloured fluids, which absorb certain rays of white light, and allow others to pass, Mr. Hunt made arrangements by which he could submit plants to an excess of *red*, *yellow*, or *blue* rays, or to an excess of the heating rays, or of the chemical or actinic ones. In this way, he was not able to study the pure influence of any of those rays in a state of perfect insulation, but merely the influence of a *preponderance* of one set of rays over others, which is sufficient to indicate to a certain extent their decided action. This will be better understood from a few results obtained with differently coloured media.

	Light.	Heat.	Chemical Rays.
White light contains ..	100	100	100
Solution of bichromate of potash	87	92	27
Solution of sulphate of chromium	85	92	7
Series of blue grasses..	40	72	90
Solution of sulphate of copper............	60	54	93
Solution of ammoniate of copper..........	25	48	94

It is very obvious that the action of the chemical rays will be obtained from the *three* last of these coloured media, and the action of the luminous and heating rays from the two first, where the chemical rays are comparatively feeble. In this way Mr. Hunt obtained the following interesting results :—

1. Light prevents the germination of seeds.

2. The germination of seeds is more rapid under the influence of the chemical rays, separated from the luminous ones, than it is under the combined influence of all the rays, or in the dark.*

3. Light acts in effecting the decomposition of carbonic acid by the growing plant.

4. The chemical rays and light (or all the rays of the spectrum visible to a perfect eye) are essential to the formation of the colouring matter of leaves.

5. Light and the chemical rays, independent of the rays of heat, prevent the development of the reproductive organs of plants.

6. The radiations of heat, corresponding with the *extreme red* rays of the spectrum, facilitate the flowering of plants, and the perfecting of their reproductive principles.

In *Spring*, Mr. Hunt found that the chemical rays were the most active, and in very considerable excess, as compared with those of light and heat. As the *Summer* advanced, the light and heat increased in a very great degree relatively to the chemical rays; and in *Autumn*, the light and the chemical rays both diminish relatively to the rays of heat, which are by far the most extensive.

"In the spring," says Mr. Hunt, "when seeds germinate and young vegetation awakes from the repose of winter, we find an excess of that principle which imparts the required stimulus; in the summer, this exciting agent is counterbalanced by another possessing different powers, upon the exercise of which the structural formation of the plant depends; and in the autumnal season these are checked by a mysterious agency which we can scarcely recognize as heat, although connected with calorific manifestations, upon which appears to depend the development of the flower and the perfection of the seed."

The very curious fact of plants *bending towards the light*, as if to catch its influence, must have been frequently observed. Mr. Hunt found that, "under all ordinary circumstances, plants, in a very decided manner, bent *towards* the light;" and, what is exceedingly interesting, when the light employed was *red*, from passing through red fluid media, the plants as decidedly bent *from* it. The property of bending towards the light is strikingly exhibited by the potato; and it has been found that the *yellow* or most luminous rays are most efficacious in producing this movement, while the *red* rays, as before, produce a repulsive effect.

If light, then, is so essential to the life of plants, that they will even exert a limited power of locomotion in order to reach it, it is not unreasonable to suppose that it may be necessary, though to a less extent, for the development and growth of animals. When we look at the different classes of the inferior animals, we hardly observe any relations with light excepting those of vision; but, under the conviction that light does influence animal life, various naturalists have devoted their attention to the subject. In his chapter "on the influence of light upon the development of the body," Dr. W. F. Edwards has given us some important information on the effect of light in the development of animals, or in those changes of form which they undergo in the interval between conception and fecundation, and adult age — a process which, previously to birth, is generally carried on in the dark. "There are, however, animals," says Dr. Edwards, "whose impregnated eggs are hatched, notwithstanding their exposure to the rays of the sun. Of this number are Batrachians (frogs). I wished to determine what influence light independently of heat might exercise upon this kind of development." With this view he placed some frogs' spawn in water, in a vessel rendered impervious to light, and some in another vessel which was transparent. They were exposed to the same temperature, but the rays of the sun were admitted to the transparent vessel. *All the eggs exposed to light were developed in succession, but none of those in the dark did well.*

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* This important result has been confirmed by the observations, on a large scale, of the Messrs. Lawson and Sons, of Edinburgh. See Hunt's *Poetry and Science*, 3rd Edition, appendix, and *Researches on Light*, p. 375.

As almost all animals are more or less exposed to light after birth, Dr. Edwards thought it would be interesting to determine the peculiar effect of light upon the *development of the body.* As all animals, in growing, gradually change their form and proportions, and make it difficult to observe slight shades of modification, he chose for his experiments species among the vertebrata whose development presents precise and palpable differences. These conditions are combined in the highest degree in the frog. In its first period it has the form and even the mode of life of a fish, with a tail and gills, and without limbs. In its second period it is completely metamorphosed into a reptile, having acquired four limbs, and lost its tail and gills and all resemblance to a fish. Dr. Edwards employed the tadpoles of the *Rana obstetricians,* and he found that all those which enjoyed the presence of the light underwent the change of form appertaining to the adult. "We see, then," says Dr. Edwards, "that the action of light tends to *develop the different parts of the body in that just proportion* which characterizes the type of the species. This type is well characterized only in the adult. The deviations from it are the more strongly marked the nearer the animal is to the period of its birth. If, therefore, there were any species existing in circumstances unfavourable to their further development, they might possibly long subsist under a type different from that which nature had designed for them. The *Proteus anguiformis* appears to be of this number. The facts above mentioned tend to confirm this opinion. The *Proteus anguiformis* lives in the subterraneous waters of Carniola, where the absence of light unites with the low temperature of those lakes in preventing the development of the peculiar form of the adult.

The experiments of M. Morren on the animalcules generated in stagnant waters, and those of M. Moleshott on the respiration of frogs as measured by the quantity of carbonic acid gas which they exhale, confirm the general results obtained by Dr. Edwards; but the most important researches on the subject have just been published by M. Beclard. During the last four years, he has been occupied with a series of experiments on the influence of the *white* and *coloured* light of the spectrum, on the principal functions of nutrition; and he has presented to the Academy of Sciences, in a concise form, some of the more important results which he has obtained.

Having placed the eggs of the fly (*Musca carnaria*) in six bell glasses, *violet, blue, red, yellow, transparent,* and *green,* he found, at the end of four or five days, that the worms were most developed in the *violet* and *blue* glasses, and least in *green;* the influence of the other colours diminishing in the order we have named them from violet to green. Between these extremes the worms developed were as *three* to *one* both with respect to bulk and length.

In studying the influence of the differently coloured rays upon frogs, which have an energetic cutaneous respiration, equal and often superior to their pulmonary respiration, M. Beclard found that the same weight of frogs produced more than twice the quantity of carbonic acid under the *green* than under the *red* glass. When the same frogs were skinned, the opposite result was obtained. The carbonic acid was then greater in the *red* than in the *green* rays.

In a number of experiments on the cutaneous exhalations of the vapour of water from frogs, the quantity was one-half less in darkness than in *white* or *violet* light, in which the exhalation was the same.*

We come now to consider the influence of light upon the human frame, physical and mental, in health and disease, in developing the perfect form of the adult, and in preserving it from premature decay. We regret to find that our knowledge on these points is so extremely limited, and we are surprised that physicians and physiologists should not have availed themselves of their numerous opportunities, in hospitals, prisons, and madhouses, of studying so important a subject. We must grope our way, therefore, among general speculations and insulated facts, in the hope of arriving at some positive rerults; and we have no doubt that the direct influence of light over the phenomena of life will not be found limited to the vegetable kingdom and the lower races of the animal world.

Man in his most perfect type is doubtless to be found in the temperate regions of the globe, where the solar influences of light, heat, and chemical rays are so nicely balanced. Under the scorching heat of the tropics, man cannot call into exercise his highest powers. The calorific rays are all-powerful there, and lassitude of body and immaturity of mind are its necessary results; while in the darkness of the polar regions the distinctive characters of our species almost disappear, in the absence of those solar influences which are so powerful in the organic world.

It is well known to all who are obliged to seek for health in a southern climate, that an ample share of light is considered necessary for its recovery. In all the hotels and lodging-houses in France and Italy, the apartments with a south exposure are earnestly sought for; and the patient, under the advice of his physician, strives to fix himself in these genial localities. The salutary effect, however, thus ascribed to light, might arise from the greater warmth which accompanies the solar rays; but this can hardly be the case in mild climates, or, indeed, in any climate where a fixed artificial temperature can be easily maintained. Something, too, is doubtless owing to the cheering effect of light upon an invalid; but this effect is not excluded from apartments so situated that, out of a western or a northern window, we may see the finest scenery illuminated by the full blaze of a meridian sun.

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* "Professor E. Forbes and Mr. Couch have both remarked that the vegetables and animals near the surface of the sea are brilliantly coloured, but that they gradually lose the brightness of their hue as they descend, until the animals of the lowest zone are found to be nearly colourless. . . . Organization and life exist only at the surface of our planet, and under the influence of light. Those depths of the ocean at which an everlasting darkness prevail is the region of silence and eternal death."—Hunt's *Researches, &c.,* Appendix No. vii., p. 386.

While our distinguished countryman, Sir James Wylie, late physician to the Emperor of Russia, resided at St. Petersburg, he studied the effect of light as a curative agent. In the hospitals of that city there were apartments entirely without light; and upon comparing the number of patients who left these apartments cured, he found that they were only one-fourth the number of those who went out cured from properly-lighted rooms. In this case, the curative agency could not be reasonably ascribed either to the superior warmth or ventilation of the well-lighted apartments, because in all such hospitals the introduction of fresh air is a special object of attention; and the heating of wards without windows is not difficult to accomplish.

But, though the records of our great hospitals may not assist us in our present inquiry, yet facts sufficiently authentic and instructive may be gathered from various quarters. In the years of cholera, when this frightful disease nearly decimated the population of some of the principal cities in the world, it was invariably found that the deaths were more numerous in narrow streets and northern exposures, where the salutary beams of light and actinism had seldom shed their beneficial influences. The resistless epidemic found an easy prey among a people whose physical organization had not been matured under those benign influences of solar radiation which shed health and happiness over our fertile plains, our open valleys, and those mountain-sides and elevated plateaus where man is permitted to breathe in the brighter regions of the atmosphere.

Had we the means of investigating the history of dungeon-life—of those noble martyrs whom ecclesiastical and political tyranny have immured in darkness, or of those wicked men whom law and justice have rendered it indispensable to separate from their species—we should find many examples of the terrible effects which have been engendered by the exclusion of all those influences which we have shown to be necessary for the nutrition and development, not only of plants, but of many of the lower animals.

Dr. Edwards, whose experiments on animals we have already referred to, applies to man the principles which he deduced from them; and he maintains even that, in "climates in which nudity is not incompatible with health, *the exposure of the whole surface of the body to light will be very favourable to the regular conformation of the body*." In support of this opinion, he quotes a remarkable passage from Baron Humboldt's "Voyage to the Equatorial Regions of the Globe," in which he is speaking of the people called "Chaymas." "Both men and women," he says, "are very muscular: their forms are fleshy and rounded. It is needless to add, that I have not seen *a single individual with a natural deformity*. I can say the same of many thousands of Caribs, Muyscas, and Mexican and Peruvian Indians, whom we have observed during five years. *Deformities and deviations* are exceedingly rare in certain races of men, especially those who have the skin strongly coloured."

If light thus developes in certain races the perfect type of the adult who has grown under its influence, we can hardly avoid the conclusion drawn by Dr. Edwards—"that the want of sufficient light must constitute one of the external causes which produce those deviations in form in children affected with scrofula;" and the more so, as it has been generally observed that *this disease is most prevalent in poor children living in confined and dark streets.* Following out the same principle, Dr. Edwards infers that, "in cases where these deformities do not appear incurable, *exposure to the sun in the open air is one of the means tending to restore a good conformation.*" "It is true," he adds, "that the light which falls upon our clothes acts only by the heat which it occasions; but the exposed parts receive the peculiar influence of the light. Among these parts, we must certainly regard the eyes as not merely designed to enable us to perceive colour, form, and size. Their exquisite sensibility to light must render them peculiarly adapted *to transmit the influence of this agent throughout the system;* and we know that the impression of even a moderate light upon these organs produces in several acute diseases a general exacerbation of symptoms."

The idea of light passing into the system through the eyes, and influencing the other functions of the body, though at first startling, merits, doubtless, the attention of physiologists. The light, and heat, and chemical rays of the sun, combined in every picture on the retina, necessarily pass to the brain, through the visual nerves; and, as the luminous rays only are concerned in vision, we can hardly conceive that the chemical and heating rays have no function whatever to perform.

If the light of day, then, freely admitted into our apartments, is essential to the development of the human form, physical and mental, and if the same blessed element lends its aid to art and nature in the cure of disease, it becomes a personal and a national duty to construct our dwelling-houses, our schools, our workshops, our churches, our villages, and our cities upon such principles and in such styles of architecture as will allow the life-giving element to have the fullest and the freest ingress, and to chase from every crypt and cell and corner the elements of uncleanness and corruption, which have a vested interest in darkness.

Although we have not, like Howard, visited the prisons and lazarettos of our own and foreign countries, in order to number and describe the dungeons and caverns in which the victims of political power are perishing without light and air, yet we have examined private houses and inns, and even palaces, in which there are many occupied apartments equally devoid of light and ventilation. In some of the principal cities of Europe, and in many of the finest towns of Italy, where external nature smiles in her brightest attire, there are streets and lanes in such close compression, the houses on one side almost touching those of the other, that hundreds of thousands of human beings are neither supplied with light nor with air, and are compelled to carry on their professions in what seems to a stranger almost total darkness. Providence, more beneficent than man, has provided a means of lighting up to a certain extent the workman's home, by the expanding power of the pupil of his eye, in order to admit a greater quantity of rays, and by an increased sensibility of his retina, which renders visible what is feebly illuminated: but the very exercise of such powers is painful and insalutary; and every attempt that is made to see, when seeing is an effort, or to read and work with a straining eye and an erring hand, is injurious to the organ of vision, and must, sooner or later, impair its powers. Thus deprived of the light of day, thousands are obliged to carry on their trades principally by artificial light—by the consumption of tallow, oil, or carburetted hydrogen gas—thus inhaling from morning till midnight the offensive odours, and breathing the polluted effluvia, which are more or less the products of artificial illumination.

It is in vain to expect that such evils, shortening and rendering miserable the life of man, can be removed by legislation or by arbitrary power. Attempts are gradually being made, in various great cities, to replace their densely congregated streets and dwellings by structures at once ornamental and salutary; and Europe is now admiring that great renovation in a neighbouring capital, by which hundreds of streets and thousands of dwellings, once the seat of poverty and crime, are now replaced by architectural combinations the most beautiful, and by hotels and palaces which vie with the finest edifices of Greek or of Roman art.

These great improvements, however, are necessarily local and partial, and centuries must pass away before we can expect those revolutions in our domestic and city architecture under which the masses of the people will find a cheerful and well-lighted and well-ventilated home. We must, therefore, attack the evil as it exists, and call upon science to give us such a remedy as she can supply. Science does possess such a remedy, which, however, has its limits, but within those limits her principles and methods are unquestionable and efficacious.

Wherever there is a window there is light, which it is intended to admit. In narrow streets and lanes this portion of light comes from the sky, and its value as an illuminating agent depends on its magnitude or area, and on its varying distances from the sun in its daily path. But whether it be large or small, bright or obscure, it is the only source of light which any window can command; and the problem which science pretends to solve is to throw into the dark apartment as much light as possible—all the light, indeed, excepting that which is necessarily lost in the process employed. Let us suppose that the street is a fathom wide, or two yards, and that the two opposite faces of it are of such a nature that we can see out of a window a considerable portion of the sky two yards wide. Now, the lintel of the window generally projects six or eight inches beyond the outer surface of the panes of glass, so that if the window is at a considerable distance below the luminous portion of the sky, not a single ray from that portion can fall upon the panes of glass. If we suppose the panes of glass to be made flush with the outer wall, rays from every part of the luminous space will fall upon the outer surface of the glass, but so obliquely that it will be nearly all reflected, and the small portion which does pass through the glass will have no illuminating power, as it must fall upon the surface of the stone lintel on which the window now rests. If we now remove our window, and substitute another in which all the panes of glass are roughly ground on their outside, and flush with the outer wall, a mass of light will be introduced into the apartment, reflected from the innumerable faces or facets which the rough grinding of the glass has produced. The whole window will appear as if the sky were beyond it, and from every point of this luminous surface light will radiate into all parts of the room. The effect thus obtained might be greatly increased were we permitted to allow the lower part of the window to be placed beyond the face of the wall, and thus give the ground surface of the panes such an inclined position as to enable them to catch a larger portion of the sky. The plates or sheets of glass which should be employed in this process, may be so corrugated on one side, as even to throw in light that had suffered total reflection. In aid of this method of distributing light, it would be advisable to have the opposite faces of the street, even to the chimney tops, whitewashed, and kept white with lime; and for the same reason, the ceiling and walls and flooring of the apartment should be as white as possible, and all the furniture of the lightest colours. Having seen such effects produced by imperfect means, we feel as if we had introduced our poor workman or needlewoman from a dungeon into a summer-house. By pushing out the windows, we have increased the quantity of air which they breathe, and we have enabled the housemaid to look into dark corners where there had hitherto nestled all the elements of corruption. To these inmates the sun has risen sooner and set later, and the midnight lamp is no longer lighted when all nature is smiling under the blessed influences of day.

But it is not merely to the poor man's home that these processes are applicable. In all great towns, where neither palaces nor houses can be insulated, there are, in almost every edifice, dark and gloomy crypts thirsting for light; and in the city of London there are warehouses and places of business where the light of day almost never enters. On visiting a friend, whose duty confined him to his desk during the official part of the day, we found him with bleared eyes, struggling against the feeble light which the opposite wall threw into his window. We counselled him to extend a blind of fine white muslin on the outside of his window, and flush with the wall. The experiment was soon made. The light of the sky above was caught by the fibres of the linen and thrown straight upon his writing-table, as if it had been reflected from an equal surface of ground glass. We recollect another case equally illustrative of our process. A party visiting the mausoleum of a Scottish nobleman, wished to see the gilded receptacles of the dead which occupied its interior. There was only one small window through which the light entered, but it did not fall upon the objects that were to be examined. Upon stretching a muslin handkerchief from its four corners, it threw such a quantity of light into the crypt as to display fully its contents.

But while our process of illuminating dark apartments is a great utilitarian agent, it is also an æsthetical power of some value, enabling the architect to give the full effect of his design to the external façade of his building, without exhibiting to the public eye any of the vulgar arrangements which are required in its interior. The National Picture Gallery of Edinburgh, erected on the Mound, from the beautiful designs of the late W. H. Playfair, is lighted from above; but there are certain small apartments on the west side of the building which cannot be thus lighted, and these being very useful, the architect was obliged to light them by little windows in the western façade. These windows are dark gashes in the wall, about two feet high and one foot broad, and being unfortunately placed near the Ionic portico, the principal feature of the building, they entirely destroy the symmetry and beauty of its western façade. Had there been no science in Edinburgh to give counsel on this occasion, the architect should have left his little apartments to the tender mercies of gas or oil; but science had a complete remedy for the evil, and in the hope that the two distinguished individuals who have the charge of the Gallery, Sir John Watson Gordon and Mr. D. O. Hill, will immediately apply it, we now offer to them the process without a fee.

Send a piece of the freestone to the Messrs. Chances, of the Smethwick Glass Works, near Birmingham, and order sheets of thick plate-glass the exact size of the present openings, and of such a colour, that when one side of the glass is ground the ground side will have precisely the same colour as the freestone. When the openings are filled with these plates, having the ground side outwards, the black gashes will disappear, the apartments will be better lighted than before, and the building will assume its true architectural character. The plates of glass thus inserted among the stones, may, when viewed at a short distance, show their true outline; but this could not have happened if, during the building of the wall, one, two, or three of the stones had been left out, and replaced by plates of glass of exactly the same size as the stones. This method of illumination will enable future architects to illuminate the interior of their buildings by *invisible windows*, and thus give to the exterior façade the full æsthetical effect of their design.*

If it is important to obtain a proper illumination of our apartments when the sun is above the horizon, it is doubly important when he has left us altogether to a short-lived twilight, or consigned us to the tender mercies of the moon. In the one case, it is chiefly in ill-constructed dwelling-houses, and large towns and cities, where a dense population, crowded into a limited area, occupy streets and lanes in almost absolute darkness, that science is called upon for her aid; but in the other, we demand from her the best system of artificial illumination, under which we must spend nearly *one-third of our lives*, whether they are passed in the cottage or in the palace, in the open village or in the crowded city.

When we pass from the flickering flame of a wood fire to rods of pine-root charged with turpentine—from the cylinder of tallow to the vase filled with oil—from the wax lights to the flame of gas, and from the latter to the electric light—we see the rapid stride which art and science have taken in the illumination of our houses and streets. We have obtained a sufficient source of light: we require only to use it safely, economically, and salubriously. The method which we mean not only to recommend, but to press upon the public attention, unites the three qualities which are essential in house illumination; but till our legislators, and architects, and the leaders of public opinion shall be more alive to the importance of scientific truths in their practical phase, we have no hope of being honoured with their support. True knowledge, however, advances with time. Vulgar prejudices are gradually worn down; and in less than a century, whether we have the electric light or not, we shall have our artificial suns shedding their beneficent rays under the guidance of science.

The present method of lighting our houses, by burning the lights within its apartments, is attended with many evils. The intolerable increase of temperature in well-lighted rooms, whether they are occupied by small or large parties—the rapid consumption of the oxygen, which our respiratory system requires to be undiminished—the offensive smell of the unconsumed gas—the stench of the oleaginous products of combustion—the damage done to gilded furniture and picture frames—the positive injury inflicted on the eyes, by the action of a number of scattered lights upon the retina—and the risks of fire and explosion, are strong objections to the system of internal illumination. About half a century ago, the writer of this article proposed to illuminate our houses by burning the gas externally, or placing it within the walls of the house, or in any other way by which the products of combustion should not vitiate the air of the apartment. The plan was received with a smile. It had not even the honour of being ridiculed. It was too Quixotic to endanger existing interests, or trench upon vested rights. Owing to the extended use of gas, however, its evils became more generally felt; but no attempt was made to alter the existing system till 1839, when a Committee of the House of Commons was appointed to inquire into the best method of lighting the House. Many eminent individuals were examined; and in consequence of the Report of the Committee, the new system was adopted of lighting from without, or in which the air breathed by the members is entirely separated from the air which supplies the burners. A similar change has, we believe, been made in the mode of lighting the House of Lords; but the new system, in its most general aspect, has been admirably carried out in one or more apartments in Buckingham Palace, where the light is distributed from the roof, as if from the sky above, without any of the sources of light being visible. This method, of course, can be adopted only in halls or apartments with an external roof. In all other cases, considerable difficulties must be encountered in houses already built and occupied; but we have no doubt that the ingenuity of the engineer and the architect will overcome them, whether the system is to be accommodated to old buildings, or applied in its most perfect state to houses erected on purpose to receive it. But, however great be these difficulties, it is fortunate, that whether we are to have the advantage of the electric light, or a purer form of carburetted hydrogen gas, the mode of distributing it will be, generally speaking, the same, and we therefore need not hesitate to introduce the new system, on the ground that it may be superseded by another.

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* When ground glass is used for illuminating apartments, the ground side must always be outside; but when it is employed, as it often is, to prevent the persons in a street, or in one room, from looking into another room, the ground side must be placed *inside* of the privileged room. If it were *outside*, the passenger in the street, or the occupant of the one room, could easily look into the privileged room by rendering the ground glass transparent—by sticking a piece of glass upon it with a little Canada balsam or oil.

Having so recently escaped from the inhumanity of a tax which prohibited the light and air of heaven from entering our dwellings, we trust that the governments of Europe will freely throw these precious influences into the dark abodes of their over-crowded cities, and that wealthy and philanthropic individuals will set the example of lighting, heating, and ventilating, according to the principles of science. Dr. Arnott has already taught us how to heat our apartments with coal fires without breathing either the gases or the dust which they diffuse. Why should we delay to light them without breathing the noxious gas, and over-laying the organs of respiration with the nameless poisons which are generated in the combustion of the animal and vegetable substances employed in the furnishing of our apartments?—North British Review.

BATH AND WEST OF ENGLAND SOCIETY FOR THE ENCOURAGEMENT OF ARTS, AGRICULTURE, AND COMMERCE.

A meeting of the Council of this society was held at Waghorn's Hotel, Taunton, on Saturday, Sept. 25th, John Sillifant, Esq. (President), in the chair. There were also present Messrs. T. D. Acland, J. Fry, W. Wippell, J. Webb King, R. Badcock, D. Adair, W. E. Gillett, J. E. Knollys, T. Newman, J. P. Pitts, G. Bullock, H. G. Andrews, J. Bailward, S. Pitman, H. G. Moysey, J. Tyrrell, T. Hussey, W. Thompson, Jonathan Gray, J. Widdicombe, G. Langdon, M. Farrant, J. H. Cotterell, R. Smith, John Gray, &c.

THE MEETING OF 1860.—Mr. H. G. Moysey brought up the report of the deputation appointed by the Council to visit Dorchester, to inspect the sites offered for the society's meeting in 1860. The Council decided to hold the meeting at Dorchester, and adopted the recommendation of the deputation as to the site.

THE FORTHCOMING MEETING AT BARNSTAPLE.—Mr. Langdon submitted a liberal list of extra prizes for stock, implements, &c., which the local committee had signified their intention of offering for competition at the ensuing meeting at Barnstaple in June next. The schedule included the offer of a premium for the best "Essay on the Agriculture of North Devon."

THE IMPLEMENT TRIALS QUESTION.—The vexed question of adapting the trials of implements at the Society's exhibitions to the requirements of the age, and the wishes of the implement-makers generally, has been frequently before the Council. At the last meeting, Mr. G. Poole brought up a report from the implement prize sheet committee, affirming the expediency of annual trials in the sections of implements to which prizes had hitherto been offered, viz., implements relating to the preparation of ground, cultivation of crops, harvesting crops, and preparing for market, preparation of food, &c. The committee also expressed a desire that certificates should be given for implements in *first* and *second classes* of merit *in lieu of money prizes*, under these conditions: "That the first-class certificate shall designate each implement which has obtained it a first-class implement; and that the second-class certificate shall state that each implement which has obtained it is entitled to commendation. That the judges be empowered to grant a *special* certificate of merit, embodying the particular grounds of the award, to any implement or invention which shall present any novelty of construction, contrivance, combination, or design worthy thereof." On the motion of Mr. T. D. Acland, this report was ordered to be printed and circulated among the exhibitors of implements of this Society, inviting suggestions thereon. A number of communications were now read from different implement-makers, offering suggestions of a wide and comprehensive character for the guidance of the Council in coming to a decision; and so important were they as a whole, that the Council were disposed to take further time to give due deliberation to the views of the parties most interested. It was accordingly resolved to refer the report back to the committee, who were empowered to complete the prize sheet, and bring up the whole question for discussion at the next meeting.

PRIZE ESSAYS AWARDED.—The following premiums for essays offered in the Society's schedule for the present year (Cardiff Meeting) were awarded to-day, viz.:

Personal Experience on a Farm in the West of England.—Prize £20, to Mr. Joseph Lush, Brewham Farm, Bruton, Somerset, motto—"Pedestrian."

On Irrigation.—Prize £10, to Mr. Henry Tanner, Crediton, Devon; motto—"*Fortuna Sequatur.*"

On Sheep suited to the West of England.—Prize £15, to Mr. H. Tanner, Crediton, Devon; motto—"*Je vis en espoir.*"

On Carts and Waggons.—Prize £10, to Mr. Edward Spender, Maunamead, Plymouth, and Mr. T. W. Isaac, Bath; motto—"*Festina Lente.*"

On Orchards.—Prize £10, to Mr. William Heale, foreman of the Upton Nurseries, Chester; motto—"Every tree is known by its fruit."

The essays marked "*Semper Fidelis*" and "Three trees" were highly commended by the *Journal* Committee.

Other business of minor importance occupied the attention of the Council until rather a late hour.

FARM LABOURERS.

The notice that has been made of the hind system, that prevails in the border counties of England and Scotland, in fixing the engagements and remunerating the services of the farm labourers, has brought forward the following statement and reflections on the system there adopted, and that of other districts, that pursue a different course. The writer has had a very ample experience of the various modes of arrangement and payment, having served for three years in the border counties of Roxburgh and Northumberland as a learner in farming, and lived seven years in the latter county as a resident practitioner, and engaged and paid the labourers under the hind system: he has also farmed and paid labourers in the midland and southern counties of England, and used the customs of those districts.

In the Border counties, the married ploughmen and all the labourers required are lodged in cottages closely adjoining the farmery, and to the field of employment. This is a vast advantage over the custom of the midland counties; where, more than in the south of England, the labourers live in villages, and travel one to two miles twice a day, betwixt the labour and their home. Even the farmers of these counties, with the farmeries, are huddled into villages; while the land of the farm lies a good way off. This is a remnant of feudal villainage; which, from the word "villa," meaning a hamlet or village, gave the name of villains to the inhabitants, who were congregated into hamlets for the sake of protection. The vast advantage, in the presence of the labourers on the scene of action, is undeniable, and needs no demonstration whatever. The hind may have an adult son to be a ploughman, who lodges with the father; or the house accommodates a stranger, on an agreed allowance for cooking and lodging. The cottage dwellings for labourers are a very essential part of the furniture of a farm of land, which are provided by the landowner, with which the farmer has to use his capital with advantage: the value is fully equal to the general farmery, and to the dwelling house of the farmer himself. An imperfect provision on any point is a drawback to the development of his capital.

The following arrangement pays the married ploughman, in the county of Roxburgh: A house and garden, in 300 to 400 square yards of ground; ten bolls of oatmeal; three bolls of barley; one boll of peas; three pounds in money; 1000 yards of potato ground in the drilled field; a cow kept during summer and winter; a woman or stout lad, at 8d. per day, throughout the year; coals carried; flax land in three cupfuls of seed, about 500 square yards; a sufficient reaper for 24 days of harvest-work, who gets board, and quarter-boll of barley, in lieu of supper. The hind gets 24 days' board. The keeping of poultry is restricted to five hens and a cock; and pays the farmer four March chickens in November.

The shepherds get, in addition to the above conditions, six breeding ewes kept; all the lambs sold in June, except two females, which supply the place of two drafts, that are fed on turnips to the first of January.

Cottages in villages are often held in tenancy from the neighbouring farmers, on the following conditions: A house and garden; 8d. a day for summer and winter in woman's work; potatoes, flax, and reaping in harvest, same as the hinds; coals carried; alternate loosening of the unthrashed grain for the thrashing machine.

In North Northumberland, the following conditions have prevailed: A house and garden; three pounds in money; six bolls of oats, of six bushels; four bolls of barley; nine bushels of peas; three bushels of wheat; a cow kept during summer and winter; 10 two-horse cart-loads of turnips in February for the cow, or one ton of hay; 800 yards of drilled potato ground; to spin 3lbs. of flax; pay one hen, and allowed to keep nine and a cock. The farmer gets the calf at 30s. in January, at 25s. in February, at 20s. in March, and so on, as no charge is made for the bull serving the cow. A stone of refuse wool, as clippings and coatings of fleeces; coals carried. When the labourers get the use of a cow from the farmer, the calf is fed for nine days by the hind.

In South Northumberland, the following conditions have been arranged: A house and a piece of garden ground; £3 in money; ten bushels of best wheat, three bushels of second quality, and one bushel in lieu of poultry; nine bushels of barley; ten bushels of oats; three bushels of peas; six stones of pork, in lieu of keeping a pig; a cow kept during summer and winter, with one ton of hay and straw; coals carried; 800 yards of drilled potato ground. The woman worker to get 8d. a day at all other times, and 1s. per day in harvest. When the hind does not keep a cow, 4s. a week in money is paid him, in lieu of the value of the keep, including the £3 in money, thus estimating the cow at about £7.

In these districts, the allowance in money is called the "deaf stint," an allusion to the keep of a second cow which had been disused, and become dead or deaf. The custom had dwindled into one cow, and the quota of money: in former times the wages had been wholly paid in produce.

The above arrangements may appear to be the remnant of feudalism, and akin to the payment of rents of land in grain, which have never got into any favour or adoption in use; but the applications are wholly different, and made under entirely different circumstances; and several feudal regulations are by no means the very worst arrangements for human society, when dispassionately considered and legitimately established. The inhabitants of Rome enjoy the privilege of fresh water in abundance, free of any charge. The rising generation of ploughmen hinds are much better trained at the parental fireside, than in congregations, as lodgers; or in villages, as frequenters of the beer shop: the whole attention is at home, and never diverted to follies and debaucheries. It is essential that ploughmen live in close contiguity to the farmery; and the payment of wages, in produce, is preferable to money; always including in the very foremost place the keep of a cow, to yield milk to the children, as no other such food is yet known. The keep of a pig and of poultry adds to the possession; and the garden yields a most healthy food in vegetables.

The great and glowing defect of the hind system of these countries is the very insufficient accommodation of the cottage dwellings, which are exclusively formed of one apartment on the ground floor, in the average of ten feet square: into this pinfold the father and mother with four or more children are huddled, along with a grown-up son and a female worker; and in it, the common decencies of life are impossible to be preserved. The beds are wooden boxes, and are carried about by the removing hinds; the fire-grates are also pulled down, and carried away at each migration of the occupier. Where the genius of agriculture has been truly said to have placed its chosen residence, the ideas of the owners and occupiers of land have not been able to rise to the height of a second floor for a cottage, in order to separate the sleeping and sitting apartments, and to afford different apartments for age and sex. This provision, along with a second apartment on the ground floor, and some back buildings, are essential to any human habitation, with a back door for the sake of ventilation. Fixed bedsteads may be placed to remain in the sleeping apartments; and it is idle to say that the hinds themselves do not wish such things; for improvements are only required to be shown, in order to be adopted. Some fifteen or more years ago, the rev. Dr. Gilly, vicar of Norham, on the south bank of Tweed, made a most pathetic appeal to the benevolence of the landowners, on behalf of the hind in respect of dwellings, which are only the stall of a stable, in which the animal performs every function of nature. Little response, if any, has been returned to the reverend gentleman, who, along with the instruction of the poor, laid the duties of property before the rich. The midland and southern counties of England are far ahead of the hind districts, in point of accommodation; the habitations, such as they are, contain two floors; and all examples of that kind have been shown by the manufacturers.

J. D.

ANCIENT NOTIONS OF VEGETATION.—At the close of the sixteenth century the one idea seemed to be that there existed a universal, generative, and fructifying salt, to which all soils and earths owed their fertility. This was the crude "agricultural chemistry" of its time, and the philosophers of that age proceeded to show the vegetative virtues of salt, declaring that it not only promoted generation in plants, but procreation in animals. "Plutarch doth witnesse, that ships upon the sea are pestred and poisoned oftetimes with exceeding store of mice. And some hold opinion that the females, without any copulation with the males, doe conceive onely by licking of salt. And this maketh the fishmongers' wives so wanton and so beautifull." After many illustrations tending to show that common salt was the salt meant, the farmer was told that the philosophers "speak not of common salt," but of a mysterious "vegetative salt." This assumed philosophy was stated with confidence, and its expression maintained with obvious conceit. "The secret virtues which lie hid in salt confirm the same. For salt whiteneth all thinges, it hardeneth all thinges, it preserveth all thinges, it giveth savour to all thinges; it is that masticke which gleweth all things together; it gathereth and knitteth all mineral matters, and of manie thousand peeces it maketh one masee. This salt giveth sounde to all thinges, and without the sounde no metall will wring in his shirle voyce. Salt maketh men merrie, it whiteneth the flesh, and it giveth beautie to all reasonable creatures; it entertayneth that love and amitie which is betwixt the male and female, through the great vigour and stirring uppe which it provoketh in the engendering members; it helpeth to procreation; it giveth unto creatures their voyce, as also unto metalls. And it is salt that maketh all seeds to flourish and growe, and although the number of men is verie small which can give any true reason whie dungue should doe anie good in arable groundes, but are ledde thereto more by custome than anie philosophical reason, nevertheless it is apparaunt that no dungue which is layde uppon barraine groundes could anie way enrich the same, if it were not for the salt which the straw and hay left behind them by their putrifaction." Sir Hugh Platt expressed his astonishment that so good a philosophy as this should have remained for a long period unnoticed.—*Philp's Progress of Agriculture.*

WAYLAND (NORFOLK) AGRICULTURAL ASSOCIATION.

This society held its second annual meeting on September 23. Of late years, the increasing popularity of agricultural exhibitions has been demonstrated in this county by the establishment of district associations. Thus, within the last few seasons, the fertile hundreds of Tunstead and Happing have established an annual show at North Walsham; and last year their example was followed in Wayland, a neighbourhood in which Lord Walsingham has played an honourably-useful part since his accession to the family estates.

The Wayland Association, which assembled at Watton, also gives rewards to deserving agricultural servants for length of servitude and general good conduct. The Society does not omit, either, to offer prizes for the best specimens of cottage-garden produce, and Lord Walsingham addressed to the recipients a few appropriate words in praise and advocacy of honesty, frugality, and attention to the work in hand. The total amount distributed was £52 6s.

The exhibition of stock took place in a field placed at the Society's disposal by Mr. Massey. A silver cup was offered by Lord Walsingham for the best animal on the ground, and special prizes were liberally given by Mr. Brampton Gurdon, M.P., the Hon. F. Baring, the Hon. B. N. O. De Grey, and the Rev. W. H. Hicks, clergyman of the parish in which the meeting took place. These prizes, and the silver and bronze medals offered by the Society, induced a fair competition. Of fat stock there were some fine specimens, and the prizes were awarded as follows: For the best horned bull, Mrs. Brasnett, silver medal; best polled bull, Mr. R. Salmon, silver medal; best horned cow, in calf or in milk, Mr. H. Oldfield, silver medal; best polled cow, ditto, the Hon. B. N. O. De Grey, silver medal; best horned (in-calf) heifer, Mr. T. Matthews, sen., silver medal; best polled (in-calf) heifer, Mr. R. Salmon, silver medal; best fat beast, Mr. J. Allday, silver medal. The whole of this last class were commended by the Judges. Mr. Kersey Cooper, Mr. J. Smith, Mr. T. Crisp (of Butley Abbey), and Mr. T. Palmer, were commended; and the animal shown by Mr. T. Matthews, sen., was highly commended. The horned cow shown by the same gentleman was also highly commended. In the class of polled cows, Mr. T. Hawes was highly commended, and Mr. H. J. W. Hunter commended. The ewes were a good class, but the Leicester rams were scarcely up to the mark. Mr. R. Webb took the silver medal for the best shearling ram; Mr. B. Hardy, for the best ram of any age; Mr. B. Gurdon, M.P., for the best five shearling ewes for breeding, and for the best five ewes of any age (Mr. T. Wrightup highly commended); Mr. T. Barton, for the best five fat shearlings, and for the best ten lambs (Mr. R. Dewing commended). Three prizes were offered for pigs, and Mr. Gurdon, M.P., received a second-class silver medal for the best boar (Mr. R. Goulder commended); Mr. W. Back, ditto, for the best breeding sow (Mr. Gurdon, M.P., commended); and the Rev. B. Edwards, ditto, for the best litter of pigs under ten weeks old (Mr. Gurdon, M.P., commended). In the horse classes, Mr. J. Tingey exhibited a noticeable cart stallion, and the prize offered for hackneys elicited a fair competition. Mr. Tingey's stallion carried off Lord Walsingham's cup for the best animal in the yard; and Mr. S. K. Gayford's hackney—a horse which also attracted a good deal of attention—was awarded the special prize (silver medal) offered the Rev. W. H. Hicks. Silver medals were awarded to Mr. W. Bacte for the best cart stallion above three years old; Mr. J. Tingey for the best cart stallion not exceeding three years old; Mr. J. Wace for the best cart mare (Mr. R. Dewing commended); Messrs. R. and C. Hartt for the best cart colt not exceeding three years old; Mr. J. Marsh for the best cart foal. This last class was a good one; and the foals shown by Mr. R. Dewing, Mrs. Brasnett, and the representatives of the late Mr. J. Cook were commended, Mr. Dewing's highly. For the rest, Mr. W. N. Roberson's cart stallion was awarded the silver medal offered by the Hon. B. N. O. De Grey; Mr. T. H. Gayford's bay mare, hack and hunter, and Mr. W. Parsley's hackney stallion were commended. Before quitting the stock, we ought to add that Mr. T. Barton was awarded the special prize offered by Mr. Gurdon, M.P.—a silver knife and fork—for the best five shearling ewes; that Mr. R. Goulder received the silver medal offered as a special prize by the Hon. F. Baring for the best pair of working bullocks; that Lord Sondes' five shearling ewes were highly commended, while his lordship's five ewe lambs were commended. The total number of stock entries was 267, an increase of 40 on last year.

Roots—there were 72 specimens exhibited, and this department attracted some attention. The Tunstead and Happing hundreds carry off the palm for roots, as far as Norfolk is concerned, but the Wayland district puts in a respectable appearance. Bronze medals were awarded to Mr. J. Tingey for the best six long mangel-wurzels (Mr. R. Salmon highly commended; Mr. J. Wace, Mr. J. Pitts, Mr. T. Wrightup, and Mrs. Brasnett, commended); Mr. H. Oldfield for the six best globe mangel-wurzels (Mr. R. Oldfields commended); Mr. W. Rook for the six best swedes (Mr. J. Tingey highly commended, Mr. H. Oldfield commended); Mr. J. Tingey for the best six turnips of any other kind (Mrs. Brasnett commended); and Messrs. R. and C. Hartt for the six best carrots (also commended).

The weather was all that could be desired, and several hours were devoted to an examination of the stock. As the shades of evening drew on, the company adjourned to the Wayland Hall (erected within the last few years for public purposes), where about 140 gentlemen sat down to a substantial dinner under the presidency of Lord Walsingham. Lord Sondes, Mr. Gurdon, M.P., Capt. Haggard, &c., were among the local gentry present. Some hopes had been entertained that the Duke of Wellington and his guest the Duke de Malakoff would also have attended the meeting; but both these distinguished personages failed to make their appearance.

The speeches after dinner were of the usual character, and confirmed the opinion that to secure any valuable discussion some subject should be chosen as a kind of text beforehand. By the system pursued at most of our agricultural gatherings, instruction in agricultural science is sacrificed to conviviality; and a fragmentary bit-by-bit style of speaking is the result—such as the *de omnibus rebus* every Friday in the House of Commons on the motion for adjournment till Monday. The great obstacle, however, in the way of agricultural discussion is the tendency of most farmers—and of other classes also—to keep a good thing to themselves, and to make the most of any advantageous wrinkle.

Still the meeting did not pass off without affording a few sentences worth notice. Mr. Gurdon, M.P., in responding on behalf of the county members, urged the propriety of attention to all improvements calculated to improve the soil and cheapen the cost of production. Mr. T. Barton, referring to a statement made last year by the judges, that the roots then shown would not keep, stated that mangel-wurzel had never remained in better condition than during the past season. The same gentleman, also alluding to a statement made in some journals, that if yellow flowers were planted among potatoes they would not become diseased, said he had tried the experiment with the perennial sunflower, and there had been no disease. Mr. Kersey Cooper, in returning thanks for the judges, expressed his opinion that several animals in the yard were worthy of more extended competition. Mr. Gayford, of Wretham, who responded for the successful competitors, remarked that the show was a decided improvement on last year, particularly as regarded the neat stock and sheep, with the exception of the rams. The cart-horses were not very superior to those shown last year, although it was a point of great importance to the farmer that his cart-horses should be powerful and active animals. He feared Norfolk farmers had rather neglected the breeding of cart-horses, and that they had to some extent lost the Norfolk stock. "Prosperity to the town of Watton" exhausted a rather lengthy toast-list, in which the healths of the noble president and a number of complimentary toasts were of course included.

PROPOSED WELSH NATIONAL AGRICULTURAL SOCIETY.

[The following letter has been circulated throughout the Principality.]

SIR,—So eminent and so acknowledged has been the success of the various National Agricultural Societies of England, Scotland, and Ireland, in improving the shape, and consequently the value of the native stock, while they diffuse a new current of enterprise and useful information throughout the farming interest, that the question naturally arises, why should not Wales have her Society, presided over by her Prince, supported by her noblemen, gentry, and yeomen, of whom many are already so distinguished for their stock and style of agriculture?

At a period when the great English breeders are at their wits' end for new elements of improvement (see Professor Brown's "Report on Live Stock at Newton," Vol. VI. West of England Society's Journal), the Principality has a comparatively virgin soil to work. That she is alive to the advantages of such an exhibition, witness the crowds at Cardiff: witness the unprecedented gathering of the Royal Agricultural Society at Chester, where at every third step you met a Welsh gentleman or farmer. At Cardiff the great feature of the meeting was the collection of Welsh Ponies, "miniature pictures of perfection" (*Mark Lane Express*); surpassed notwithstanding, as all can testify they might have been, who have travelled the Black Mountain district, or remember the old Rûg strain of North Wales.

In London prices almost fabulous are obtained for the first-class Welsh pony, with its hunter points, its blood-like head, square action, and indomitable spirit.

At Chester the mountain pony-stallions were "highly-commended," as a class, throughout, and spoke of with admiration by the judges.

The blood-hack, again, bred between the Welsh mare pony and the thorough-bred horse, is ever a subject of eager competition.

At the Chelmsford Meeting of the Royal Agricultural Society, a leading attraction of the show was a little Carmarthenshire mare, "one of the most handsome cobs ever seen" (*Mark Lane Express*), subsequently sold at an advanced age for one hundred guineas.

There is, again, the spirited, compact carter, found along the hill side (of just the stamp the Yorkshireman loves), which needs only size and careful breeding to rival the Clydesdale and Suffolk.

For hunters let Pembrokeshire speak alone. Only a few weeks since, one London dealer took a string of seventy from that county; while the peculiar Shropshire type of horse is said to owe its best characteristics to a dash of the Welsh pony blood.

Not a few indeed of the fine English horses are due to Wales in another point of view: having been bought as suckers at the Welsh autumnal fairs from the small farmers, and subsequently forced on rich fen pasture in England.

Here then is material for the enterprising improver, when we consider the reckless way in which at present the Welsh horse is bred, and how grievously starved in youth.

Then, as regards the native sheep, look what judicious selection and attention have done for the Exmoor breed, so faultless as they were at Cardiff. Already indeed in the specimens exhibited annually at Sir C. Morgan's Tredegar Show there is an indication of what may be done for the Welsh. Interested breeders of other stock may smile; but greatly esteemed as Welsh mutton is in the "Metropolis, and commanding an extravagant price" (*Mark Lane Express*), there is a good prospect of profitable returns to those who, disregarding prejudice, will patiently adopt such reasonable principles as regulated the early cultivation of the Down and other fashionable breeds.

"Whatever you do," said Mr. Torr, at the dinner of the Highland and Agricultural Society of Scotland, a few days since—"whatever you do, don't neglect the native breeds of Scotland. Depend upon it the nation does not possess more valuable animals than those native breeds."

And why should Wales depend on others any more? At Chester the black cattle were acknowledged to be admirable. On this head again hear that distinguished authority the *Mark Lane Express*: "But the Welsh cattle stood in the greatest prominence here; and it is only a national meeting like this that can demonstrate how far they may be actually improved. Colonel Pennant's stock are very different to the 'runts' we are accustomed to, good even as they are, and it is very evident that with a little more care the black cattle of North Wales may become a favourite breed. At present it is said the farmers take little or no pains with them; the landlords however are setting them an excellent example, and something must come of it." Surely in the cultivation of this field there is only needed enterprise and union, and it were a new firm bond of a decaying nationality.

With Devonshire, Herefordshire, and the Short-horn country at hand, there need be little fear of a limited entry in those respects if the prizes be, as they should be, sufficient and open.

Several ulterior questions will present themselves in course, as, for instance, how far it may be deemed expedient to amalgamate in one Central Society the existing local county shows? Whether, if established, this Society should hold its meetings at one central place always, or alternately in North and South Wales? Whether there should not be special prizes for flannel and other provincial manufactures, &c.? For the present, this circular is dispatched as a feeler, and we should be much obliged by an early answer, as to whether your support will be given to the project, and any suggestion on any point.

On behalf of the Provisional Committee,

GEORGE MONTGOMERY TRAHERNE.

To whom all communications are requested to be addressed.

St. Hilary, Cowbridge, Glamorganshire,
September, 1858.

IRISH AGRICULTURAL STATISTICS.

TOTAL NUMBER of LIVE STOCK in each year from 1855 to 1858, inclusive:—

	Horses.	Cattle.	Sheep.	Pigs.
1855	556,287	3,564,400	3,602,342	1,177,605
1856	573,408	3,587,858	3,694,294	918,525
1857	599,782	3,620,954	3,452,252	1,255,186
1858	610,717	3,661,594	3,487,785	1,402,812
Increase or decrease in numbers from 1855 to 1858—	54,430 increase.	97,194 increase.	114,557 decrease.	225,207 increase.

TOTAL VALUE of LIVE STOCK in each year from 1855 to to 1858, calculated according to the Rates assumed by the Census Commissioners of 1841, viz.:—For Horses, £8 each; Cattle, £6 10s.; Sheep, 22s.; and Pigs, 25s. each:—

	Horses. £	Cattle. £	Sheep. £	Pigs. £	Total. £
1855	4,450,296	23,168,600	3,962,576	1,472,006	33,053,478
1856	4,587,264	23,321,077	4,063,723	1,148,156	33,120,220
1857	4,798,256	23,536,201	3,797,477	1,568,952	33,700,916
1858	4,885,736	23,800,361	3,836,563	1,753,515	34,276,175
Increase or decrease in value from 1855 to 1858—	£435,440 increase.	£631,761 increase.	£126,013 decrease.	£281,509 increase.	£1,222,697 increase.

ABSTRACT OF CEREAL CROPS.

	1857. Acres.	1858. Acres.	Decrease. Acres.
WHEAT	559,646	551,386	8,260
OATS	1,980,934	1,976,929	4,005
BARLEY	211,288	190,721	20,567
BERE AND RYE.	21,374	16,489	4,885
BEANS & PEAS.	13,586	12,876	710
Total	2,786,828	2,748,401	38,427

TOTAL EXTENT, in Statute Acres, of CEREAL and GREEN CROPS from 1855 to 1858, inclusive:—

	1855.	1856.	1857.	1858.
WHEAT	445,775	529,050	559,646	551,386
OATS	2,118,858	2,037,437	1,980,934	1,976,929
BARLEY	226,629	182,796	211,288	190,721
BERE and RYE	22,817	19,891	21,374	16,489
BEANS and PEAS.	18,485	16,034	13,586	12,876
POTATOES	982,301	1,104,704	1,146,647	1,160,056
TURNIPS	366,953	354,451	350,047	337,877
MANGEL & BEET.	22,567	22,201	21,629	30,027
CABBAGE	24,121	27,968	30,011	33,107
CARROTS, PARSNIPS, and other Green Crops	19,042	20,734	21,602	23,450
VETCHES & RAPE.	29,406	29,183	34,740	33,441
FLAX	97,075	106,311	97,721	91,555
MEADOW & CLOV.	1,314,807	1,302,787	1,369,892	1,424,578

ABSTRACT OF GREEN CROPS.

	1857. Acres.	1858. Acres.	Increase. Acres.	Decrease. Acres.
POTATOES	1,146,647	1,160,056	13,409	—
TURNIPS	350,047	337,877	—	12,170
MANGEL WURZEL and BEET ROOT	21,629	30,027	8,398	—
CABBAGE	30,011	33,107	3,096	—
CARROTS, PARSNIPS, and other Green Crops	21,602	23,450	1,848	—
VETCHES & RAPE.	34,740	33,441	—	1,299
Total	1,604,676	1,617,958	26,751	13,469

Increase on Green Crops in 1858:—13,282 acres.

GENERAL SUMMARY.

Increase in Green Crops in 1858		13,282
Do. on Meadow and Clover in ditto		54,686
Total increase		67,968
Deduct decrease on Cereal Crops, 38,427 acres Do. do. Flax 6,166 ,,	in ditto.	44,539
Total increase in the extent of land under crops in 1858		23,375

As regards the condition of Irish agriculture, I beg to state that I continue to receive communications from various quarters relative to the pernicious growth of weeds which is unfortunately so prevalent throughout the country; and an anxious desire is generally expressed for some legislative measure to protect the improving farmer, who cleans his land, from the injury done to his crops by the winged seeds of noxious weeds carried by the wind from the field of some negligent neighbour. Such a protection is afforded to the cultivator of the soil in some of Her Majesty's Colonies, and in parts of Europe.

The number of holdings in Ireland—from all of which returns are obtained—is nearly 600,000. The number of enumerators this year was about 4,000; they were selected from the Constabulary and Metropolitan Police, and, as on former occasions, discharged their duties in a very efficient manner.

WILLIAM DONNELLY,
15*th September*, 1858. Registrar-General.

HARVEST HOME.

"Come sons of summer, by whose toil
We are the lords of wine and oil;
By whose tough labours, and rough hands,
We rip up first, then reap our lands:
Crown'd with the ears of corn, now come,
And to the pipe sing HARVEST HOME.
Come forth, my lord, and see the cart
Dressed up with all the country art:
See here a maukin; there a sheet
As spotless, pure, as it is sweet;
The horses, mares, and frisking fillies,
Clad all in linen white as lilies;
The harvest swains, and wenches bound
For joy, to see the hock-cart crown'd:
About the cart, hear how the rout
Of rural younglings raise the shout,
Pressing before, some coming after,
Those with a shout, and these with laughter:
Some bless the cart, some kiss the sheaves,
Some prank them up with oaken leaves;
Some cross the fill-horse, some with great
Devotion stroke the home-borne wheat.
Well, on, brave boys, to your lord's hearth,
Glitt'ring with fire, where, for your mirth,
Ye shall see first the large and chief
Foundation of your feast, fat beef;
With upper stories, mutton, veal,
And bacon, which makes full the meal;
With several dishes standing by,
As here a custard, there a pie,
And here all-tempting frumenty;
And for to make the merry cheer,
If smirking wine be wanting here,
There's that which drowns all care—STOUT BEER."

FISH MANURE.

It is strange how long some subjects take before they obtain firm hold upon the public mind, or become objects of practical utility and industrial application. Thus the utilization of the sewage-manure of towns, of the sea-weeds, and the waste offal and inedible fish of our coasts, much as they have all been discussed for many years past, have not yet become articles of commerce, so as to be available to any extent by the farmers of the kingdom.

Mr. Braithwaite Poole, in his Statistics of British Commerce, tells us that there are annually used in the United Kingdom 90,000,000 tons of farm-yard or animal manures, exclusive of guano, nitrate of soda, and other artificial fertilizers. This subject of fertilizers for our soils involves a money value of £25,000,000 annually. Anything, therefore, that would economize the labour of transporting and spreading bulky farm-yard manure, by giving us a more concentrated and portable fertilizer for our soils, anything that will render us less dependent upon the Peruvian Government for guano, would be hailed as a national boon. If but half the energy, a tithe of the capital, and a small share of the experimental research and skill applied to many engineering and mechanical undertakings, had been directed to these important desiderata, we should long ere this have been reaping the benefit of a home manufacture calculated to renovate and invigorate our soils, and add largely to the productive resources of the kingdom.

For several years past, project after project has been started, to extend the use of fish-manure; but one after another has broken down, from some cause or other. Three years ago Professor Way, in a lecture before the Royal Agricultural Society, called special attention to the use of fish as a manure, and contributed much valuable information on this important subject. He described the various methods that had been proposed, or were being carried out, for drying and preserving the fish; such as those of Mr. Pettitt by sulphuric acid, of Mr. Elliott by the use of alkali, of Mr. Bethell by the employment of tar oils, of Messrs. de Molon and Thurnysen by treatment with high-pressure steam, of Mr. Stevens (the contractor for refuse fish at Billingsgate) who incorporates the fish in superphosphate of lime, &c.

The West of England Fisheries and Fish Manure Company (Galway) recently wound up after a few months' trial, and wasting a large amount of capital. The Lowestoft French experiment seems to have been placed in the hands of persons possessed of little or no practical commercial knowledge. Mr. Pettitt's patent seems to have failed mainly from the indolence of the Irish fishermen, where the chief experiments were made, and the expense of sulphuric acid required for the reduction of the fish.

A new association, the North Sea Fisheries Company, is now establishing itself at Lynn; and another experimentalist on the manufacture of fish-manure, Mr. Samuel Osler, of Yarmouth, has also entered the field of production. Mr. Osler evidently brings to the subject a large amount of local experience, extensive connections, sound judgment and practical knowledge, which we trust may result in benefit to himself as well as to the agricultural community. He proposes entering largely into the manufacture of fish-guano, and relies chiefly for the raw material upon the supplies of waste fish and offal always to be obtained. Thus he says:

> "The waste and refuse of a great fishing port will supply the materials cheaply and without risk or outlay, and as it will be a great additional gain to a fishing adventure to obtain a certain and constant demand for all this waste and otherwise unsaleable fish, the establishment of manufactories of fish-manure will lead to new fisheries where, without such aid, they could not prudently be commenced. Yarmouth, the chief fishing-station in England, with the adjoining coast from Lowestoft to Aldborough, offers every advantage for such a manufacture. It employs near 400 boats, from 25 to 60 tons each. They ordinarily afford from 2,000 to 3,000 tons of broken fish and salt, selling at about £1 2s. per ton; besides the waste of 400 smoking-houses, sold as refuse; and from 500 to 700 tons of herring-scales, a substance containing a very large proportion of phosphates, and obtainable for £1 10s. per ton. This is independent of the waste from occasional gluts of dog-fish and others, useless for food, of which no account is taken, yet which are caught in very large quantity, and of which an unlimited supply might be obtained, if the fishers could obtain a sale. Last year, so great was the glut of herrings at Lowestoft that, at one time, they were carted by the farmers at 4s. 6d. per ton. An ample, cheap, and continuous supply would therefore be secured from the first, by simply taking from the fishermen what they will only be too thankful to sell; and the manufacture, which would be in every sense of the word a national benefit, may be carried on with no risk, small outlay, and large profit."

We need not dilate upon the relative value of fish-manure as an application to the soil, because this subject has already been well ventilated, and is perfectly understood by the farmers generally. The extensive and increasing use of Peruvian guano, even at its high ruling price, is an evidence of this. According to Professor Johnston, ten tons of fish, as far as nitrogen is concerned, are equal to sixty-six tons of farm-yard manure. Fish-manure afforded by dried fish will give 16 per cent. of nitrogen, if the ammonia is fixed; in blood 12 per cent., guano 14 per cent., farm-yard manure and marine plants about 2 per cent.

We have had analyzed different samples of Mr. Osler's patent fish manure sent to us, and find that it contains from 8 to 12 per cent. of ammonia; the difference arising from manufacturing fully or partially-salted inedible fish; the higher per-centage being yielded without alkaline salts. The manure is prepared in a single day, without hydraulic pressure or grinding. The product from salted fish is stated to be about four-tenths of the bulk or weight, and from fresh fish about three-tenths; consequently the cost of the manufactured article may be readily determined by the rate at which offal-fish can be bought—generally about 20s. per ton for dog-fish and others; and these rates will pay the fishermen to fish especially for them. Dog-fish yield a large quantity of manure, their muscular fibre being so firm; and there is also much oil obtained from the liver. During the process of manufacture the albumen becomes solidified, like the white of an egg, adding to the quantity and richness of the manure.

While the manufacture of fish-manure is being successfully prosecuted in France, in Newfoundland, in Massachusetts, and other coasts of the United States, it does seem somewhat strange that it has not yet been made an extensive branch of business on our sea-coasts. With such fishing-stations and sources of supply as Yarmouth, Lynn, Penzance, Mullin, Plymouth, Edinburgh, Dundee, Wick, it is a disgrace to us that the boundless harvest of the ocean placed at our doors should not have been more freely drawn upon for food and for manure.

It is not every farmer who can avail himself of the superabundance of the fisheries to cart off to his land; but by a slight desiccation and suitable preparation large supplies of portable and valuable manures are available, and would be readily purchased throughout the country.

Mr. Osler combines with his patent the preservation in a cheap and portable form of all the nutritive portions of fish for food, in a concentrated and portable form. But with this and the other products, oil, gelatine, &c., which come in as profitable adjuncts to the manufacture, we do not deal, confining ourselves chiefly to the consideration of the more important matter of manure for the soil.

Aside from this most important point, such a manufacture exclusively carried out would even be of great national interest. It would enable a fishery to be established at every cove and nook that can shelter a boat, giving the blessing of abundant cheap animal food to the labouring population, genuine and economical concentrated animal manure to the farmer, a crew to man a life-boat at every spot of danger, and an effective band of seamen for the defence of the country.

THE PROPOSED INTRODUCTION OF THE ALPACA TO AUSTRALIA.

While attention is now so largely directed to works of skill and feats of construction, there is also something else to be done for the benefit of the United Kingdom and of mankind at large. We may contemplate with pride the mechanical skill, perseverance, and ingenuity which have resulted in our expensive railways, the Atlantic telegraph, the launching of the Leviathan, and the construction of Keyham and Cherbourg Docks. But the human race, as it progresses, must be fed and clothed, for we shall get no work out of empty stomachs.

It is right, therefore, that attention should now and then be directed to something useful and something new in the way of acclimatization, whether it be of animals or vegetables. Not that we have been at all backward in this good work in Great Britain, as our fields, gardens, and pastures amply testify. The Merino and the Southdown improvements have done much for the fleece and flesh of our sheep. We may point also with satisfaction to our improved breeds of horses, cattle, swine, and poultry. If we have not yet found a substitute for guano, we may yet do so when our coast fisheries are more developed, and the metropolitan sewage projects have settled down into practical utility. But it is not with our home enterprise that we desire at present to deal. There is skill, energy, and competition enough displayed among breeders, farmers, and agricultural implement-makers of every class. Still it is wise to have our eyes open to future interests at home and abroad; for we desire to receive something besides gold from our colonies, glad as we are to hail the arrival of the auriferous ore which reaches us to the value of millions in the year. We could better, however, dispense with the yellow metal from Australia than we could with the acceptable bales of wool. Without the fifty-million pounds of wool annually from Australia our manufacturers would be sadly inconvenienced for the raw material. The introduction of new and improved breeds of domestic animals in our colonies is of the highest importance to them and to ourselves, because we share in their industrial products. Much too little has yet been done in this respect; and now that the minds of the colonists are so pre-occupied with the gold-mining and trading, that the days of squatting, when sheep-farming, cattle-breeding, and cultivation were more primarily thought of, have passed away, our merchants and farmers at home have to take the initiative in suggesting and carrying out many improvements. Hence we hail with satisfaction the effort now being made to purchase by subscription and send out to Australia the flock of alpacas recently brought over from South America.

The advocacy of the introduction of the alpaca into our colonies is no new idea, but was mooted many years ago, and its importance shown. These subjects are driven out of mind by other more stirring topics, and have to be renewed from time to time, in order to become impressed upon the public mind, and lead to the desired results. The United States are before us in many of these matters. Thus they have recently been importing camels for interior travel, which are reported to answer admirably. They have also, for some time, introduced and bred the Angora and Thibet goats, and are now speaking of domesticating the Rocky Mountain goat or sheep, which bears a good fleece.

How beneficial would the camel have proved in Australia! How many good lives might have been spared had this useful beast of burden been introduced! We should not have had to mourn the loss of such a man as Leichhardt, and other bold explorers. Australia is the very place for the Bactrian camel; and this animal is not only a necessity for exploring parties in the far interior, but would prove of immense advantage to traders in the conveyance of merchandise, until a network of railways cover the land.

The importance of alpaca wool is now thoroughly appreciated, and our manufacturers, and those of France, would use twice the quantity if they could get it. It is still largely in demand, although our imports —2,500,000 to 3,000,000lbs. annually — are double what they were a few years ago. Beautiful stuffs are produced in great varieties from it, worked alone, or mixed with wool or silk.

With the view of benefiting the colony, the Government of South Australia notified, some years ago, its willingness to encourage the importation of camels and alpacas by holding out a bonus of £60 to the first importer of one male and two female camels, and the sum of £50 to the first importer of two male and eight female alpacas, in healthy condition, any time during the year 1851. If the offer was not claimed in due time, it at least led to some result; for we find that a Mr. Haigh, of Port Lincoln, has now several Cashmere goats, alpacas, and Angora goats thriving well. The alpacas are of remarkable excellence: the black specimens of a deep bright black, almost jet. These fleeces weigh from six to ten pounds each, the wool being thirteen inches long. The fleece of the Angora goat is a mohair of a peculiarly soft and silky character. The fibres are wavy, and slightly inclined to curl. The wool, even at four months' growth, is six or seven inches long.

The extensive introduction of the alpaca into Australia offers a wide field of encouragement to the pastoral settler. The climate and pasture are well suited to the wants of the animal; and the profit on the clip is far beyond that of sheep's wool. Hundreds of thousands of alpacas might roam among the mountain chains, or cover the elevated plains of Australia, neither trenching upon the sheep nor depasturing upon cultivated lands. They would not enhance the price of a wheaten loaf, but would open up employment to thousands—call a large and ever increasing capital into circulation, and not only produce a new and valuable fabric, but also by degrees create a demand within the colonies themselves for the employment of machinery for the production of the multitudinous manufactures to which the silky alpaca wool can be applied.

There are three distinct species of this animal: The alpaca, the largest and most important; the guanaco, of a dark-brown colour, inclining to white under the belly; and the vicuna, the smallest species, about the size of a goat, whose body is covered with a remarkably fine soft wool, of a pale reddish-brown. All the species are easily domesticated; indeed, the alpaca has been a domesticated animal as long as we have any record. The wool of the vicuna and guanaco, although less valuable than that of the alpaca, enters into commerce for hat-felting and other purposes.

The vicuna and guanaco inhabit the elevated regions of Patagonia, where no other animal can live. They are numerous in the Cordilleras of Chile, where flocks of several hundreds are seen together, like sheep, and hunted for their wool and flesh. If they could but be multiplied in the interior ranges of Australia, taking the place of the native kangaroo, how great would be the benefit!

So jealous are the Peruvians of the export of these animals, that every possible obstacle—fine, penalty, and imprisonment—are placed in the way of their shipment: hence their purchase and transport have to be made surreptitiously. That they can be obtained is evident from the fact that at least a couple of hundred have been imported into this country during the last fifteen years; and that they have thriven and bred in England and Scotland. But they have been kept here more as objects of curiosity than for propagating the breed and increasing the supply of fine long wool.

What we desire to see, therefore, is a strenuous and business-like effort to extend this domesticated breed of wool-bearing animals in our colonies, wherever the climate and locality are suitable. If the Manchester manufacturers find it to their interest to promote, by every means in their power, the extended culture of fine and improved cotton by associated enterprise, surely it must be equally important to the second great manufacturing interest of this kingdom to stimulate and encourage new supplies of fine long staple wool. What has been done by Mr. Titus Salt is an earnest of what can be done by others. The field of operation is a wide one; the results likely to be individually remunerative, and generally beneficial to the great interests of the wool trade.

LOIS-WEEDON HUSBANDRY.

In the absence of a new edition of the "Word in Season," all readers who feel an interest in the Lois-Weedon husbandry will welcome the following letter from the Rev. Mr. Smith:

Lois-Weedon Vicarage, Aug. 23rd, 1858.

Our wishes and expectations are realized; and trenching is done by steam. If this is a boon to others, you, who have entered so deeply into the practical details of Lois-Weedon husbandry, will foresee at once its eventual importance to me. For trenching by steam costs but 12s. per acre, up to 18s. in extreme cases; and if so, my moiety of each acre will cost but 6s. to 9s. at the utmost.

But my great object in writing is to answer your question, How my crops have turned out? Taking quality and quantity together, never so well; for on my three-acre home piece of clay land, the yield this year of fine red wheat, tested by the bushel, was over 5 qrs. to the measured acre; sold at once for 45s, with a very heavy weight of straw, estimated at more than 2 tons to the acre. And you would not be surprised at the estimate, had you seen it before reaping—a good deal of it upwards of 6 feet high, and yet none of it laid. By the expression, "5 qrs. to *the* *acre*," I mean—as you know, but many do not—the whole superficial acre, including the fallow intervals. I mean that the crop of 5 qrs. was taken from only the moiety, or —as some will have it—three-fifths of the acre; the other moiety being a well-tilled bed for the succeeding crop.

I have said that none of this tall and heavy wheat-crop was laid. I believe the case is almost peculiar. With the exception of another piece of wheat in this parish, on my plan, I know of no other bulky crop that was not in part or wholly beaten down; and had only ten days' fall of rain come upon it in that condition, the loss to the country would have been immense, and in some cases ruinous. We were only saved by a providential succession of many weeks of sunshine unprecedented in our climate. Could we reckon upon such a season year after year, the open-handed, intelligent farmer, with the aid he now has from artificial manure, might safely reckon year after year upon a yield of 6 qrs. As it is, the best authorities despair of any means, in the ordinary mode of farming, of guarding against an evil which so often partially blights or utterly destroys his hopes.

I owe my general immunity from this disaster, not so much to the greater comparative stoutness of my straw, as to the broad space of my fallow intervals, which enables me to *earth-up my wheat with the mould-board*

Though my wheat crop on the clay, with reference to the principles and practice of Lois-Weedon husbandry, is the most important crop of the two, you will like to hear of the four-acre piece on the gravel land. It is in stack, and can only be *estimated* at a full average. The crop, though short in the straw, and not bulky, was very beautiful, and upstanding throughout; and the large and heavy ears—nearly double the size of those in the adjoining fields—clearly owed their excellence to a peculiar process in tillage —a last deep and effectual stirring, at the commencement of flowering; and when I speak of such a stirring, I mean what is tantamount to a dressing of guano.

My winter beans, *in single rows 5 feet apart*, *yield*, *by measurement, 5 qrs. to the acre;* with an interlining light crop of carrots. Last year the yield of beans, grown in the same way, was 6 qrs. 2½ bushels, which sold at 48s.; with somewhat under 8 tons of red carrots in the intervals.

This very remarkable produce of beans was correctly given in the *Mark Lane Express* a short time since; but when reference was made to the wheat crop on the clay, there was an error, as the yield was actually 4½ qrs., after being estimated at 6 qrs. Faithfully yours,

S. Smith.

The successive yields in bushels per acre on the renowned "clay piece" have been as follows—in the harvest of—

1847 (not measured).		1853	}*
1848	34	1854	
1849	34	1855	40
1850	34	1856	37
1851	28	1857	36
1852	34	1858	40

* Not known to us; but the crop of 1854 very heavy.

The straw varies from 1½ to more than 2 tons per acre. Thus, while the average of the twelve years is about 35 bushels an acre, the average of the last four years is 38¼ bushels—that is, 5½ bushels more than the average of five earlier years. There are no symptoms of exhaustion in such a state of things, though the land has been kept in heart without a single application of either farm-yard, liquid, artificial, or any other manure—the grain, of course, being sold, and the straw and stubble carried-off and consumed as fodder and litter for the enrichment of other fields. The soil being so mellow and productive, unlike its original self in tenacity and temper, possesses evidently no smaller amount of "humus," or unctuous warmth-yielding vegetable matter, than it formerly did; and from the absorbent, altered texture of the soil and subsoil, there is obviously more instead of less of the carbon, ammonia, and other organic substances. So that the non-mineral portion of the crop—that is, the great bulk of all the twelve years' grain and straw, has been acquired from the atmosphere, either directly by the plant during its vegetation, or indirectly through the agency of the soil. But the silica, potash, soda, lime, phosphorus, sulphur, and other mineral ingredients—abstracted some by stones' weight, some by only pounds' weight per acre—have clearly been removed from the field without any return or restitution; and when the stock of these, or but one of these, constituents is reduced to a certain quantity, the land will be soon exhausted and the crops will fail. Year by year Mr. Smith deepened his staple with the fork, every inch of fresh soil providing a hundred thousand tons for an acre's crop to search in for minerals, and, while he thus deepened, all might be well. But when deep digging became too expensive and tedious, how long would the supply of earth-food beforthcoming? Twenty inches down Mr. Smith stayed his hand, and the last four crops have been grown we believe, on intervals worked only half-depth—snowing that one crop cannot glean out the nutriment contained in a single fresh inch of such soil. The clay is not a shallow stratum, but has a similar constitution for several feet down, at least as far as minerals are concerned; and as the ground grows richer in organic matter as the tillage opens it to the air, Mr. Smith may prepare mineral nourishment below as fast as the wheat crops consume it at the surface. This land is not peculiar for this homogeneous nature; but thousands and tens of thousands of acres of deep loams and clays, or soils now shallow because of the culture, but which might be worked to treble their depth, have subsoils *minerally* as good as the staple. Only prepare these minerals by contact with the atmosphere and its various agencies, sufficiently fast for the demands of your crops, and no number of crops in succession can exhaust them—the minerals, in fact, lasting while you have any soil left. On a shallow loam on raw gravel or rock, you cannot thus permanently maintain the supply: the hard material will disintegrate and furnish fresh soil, but so slowly that the minerals in the loam must be carefully husbanded, and fertility be preserved by restoring in manures what is stolen by the crops. On a gravelly subsoil, poor in wheat minerals, Mr. Smith only practises after-dressing with clay; and his four-acre piece has produced an admirable harvest eight years in succession without any other species of manure than that one moderate spreading of clay, though the land was both foul and exhausted when he began his culture.

With expenses and profits we meddle not just now—merely saying that with wheat down to forty shillings a quarter, Mr. Smith gets a handsome return for his outlay. But we would reiterate, that year after year brings new proofs to substantiate the system; and now that steam trenching and subsoiling are within every farmer's reach, by which the Lois-Weedon tillage can be greatly cheapened, we really hope it will be taken up in earnest, in every suitable locality.

THE ROYAL AGRICULTURAL IMPROVEMENT SOCIETY OF IRELAND.

MEETING AT LONDONDERRY.

The national Agricultural Society of Ireland would seem to flourish almost before its time. It is very certain that the Irish farmer is not even now quite prepared for its proceedings. He cannot welcome the institution of such an organ as did his brethren in England the establishment of a similar association. In a word, he is hardly equal to the position. The small holdings, still more or less general here, will not allow of the occupier taking much active interest in such an occasion. He has no stock to exhibit, and few implements to buy. He is rarely a member of the Society, is as seldom seen at the dinner, and year after year suffers the tenant-farmer classes to pass by with " no entry," or " no competition."

And yet, perhaps, there is not one of our three agricultural bodies doing more good than this is. Its influence may be not altogether so apparent, but its effect is unquestionable. The *Improvement* Society, in fact, is acting quite up to its title, and is dating this improvement from the fountain head. It is simply, so far, a school for landlords. Nothing, we really believe, has tended more to make the owners of the soil residents on their estates. Nothing has certainly ever, previous to this era, caused them to take so active a share in the management of their property; and nothing has conduced so much to its amelioration. The very character of the annual meeting has something of an excitement and an emulation about it, especially attractive to the national taste; and " my lord " will now prepare a Shorthorn or a Clydesdale with all the energy he once employed over a steeple-chaser, or an entry for The Curragh. The only material difference is this, that, win or lose, the estate would suffer in the one case just as it profits in the other. But the diversion in favour of the pursuits of agriculture will not end here. The Irish Society must become a farmers' society, after all. An improving landlord will never rest content with a non-improving tenantry. The owner who has learned what may be done will be sure to see that it is done. Indirect as this action may be at the outset, it will eventually be effective. The landlord is getting off his lesson very creditably, and the other's turn must come. There is no doubt they have both wanted it; at the same time it is encouraging to see how people may improve themselves. The advance of agriculture in Ireland is so far almost entirely due to the Irish themselves—to the Irish gentry more particularly.

There are now few districts in which such a comparison as that inferred would be more striking than in Londonderry. Such a meeting might at the first glance appear almost out of place here. What are the forty-acre farmers to do with costly shorthorns, or the promising performances of the steam-plough? What good can come of it? Can they ever hope to attain to either one or the other? We must let their landlords answer for them, as they did at the dinner here, and say they *can* hope for something from all this. It may begin with a better horse travelling the country, or by "Sir Harvey" buying a reaper or a steam-engine. But the visit will not have been paid in vain. The very city of Derry will "take up" the cause, and the goodly corporations will have to follow the example. It is proverbial that we have few worse landlords than these public bodies; but the day is coming when Colleges and Companies will no longer be allowed to stand in the way of our advancement.

However well or ill the neighbourhood may have been previously read up, the kind of instruction provided here was of the highest order. Without being throughout numerically the strongest, it was one of the best shows the Society has ever commanded. Of course, like nearly all other similar institutions, this has its peculiar features of excellence—Short-horn cattle and Berkshire pigs—more recently, Horses—and yet more recently, Implements. It was by far the best exhibition of the latter ever seen at one of these migratory meetings; and yet more satisfactory was it to notice the increasing attention paid by the public to this section of the show. On the Thursday the crowd fairly deserted even the thorough-bred horses and Challenge Cup cattle, to throng round Richmond and Chandler's, and Gray's (of Glasgow) well-arranged collections. The steam-plough trials, to be reached by a miserable single line of railway, were too far off to tempt many; but either for business or good sensible enquiries, the manufacturers had never so much to do at an Irish gathering. It is significant to add that Mr. Torr, a judge here, and a member of Council in his own country, attributes much of this success to the introduction of the prize system. Some years since there were no premiums given for implements in Ireland, and the show of them was a mere shadow to what it has been since the offer of money prizes. Surely there is some deduction to be drawn from this.

A full report of what was exhibited and done in this division of the prize sheet is subjoined by a valued correspondent of our own, who was present at all the trials. To return to the original attractions of an Irish meeting, we have to report another famous entry of shorthorns. Indeed, had all been forwarded that were promised, it would have been a more than usually good display of them. Mr. Stratton, however, did not send his nominations, and the numbers consequently came very much to a par with those at Waterford last year. But to prove the superiority of the sample, it may be added that the then best of all the animals was only the best of her class here—Mr. Douglas' The Rose of Athelstane, who took the first prize for cows. She was still beaten for "the best of all" by one of her own herd, and a half-sister—the now famous Queen of Trumps. The latter was again side by side with Venus de Medicis, and the vexed question as to the pick of the pair was decided in confirmation of the Chester award. In fact, the Queen of Trumps appears to have improved even since then, and it is difficult now to imagine how the white heifer could have ever had the advantage of her. The quality of either is excellent; but her majesty is the more roomy and broader, of a better colour, with a better head, and certainly with the preference in point of general appearance. But they are both extraordinary animals, and should be painted—as they so often have stood—together. Mr. Douglas thus wins the new Purcell challenge-cup for the second year in succession, and it looks more than probable that he may follow Colonel Towneley's example, and secure it during the next. He also wins the gold medal with the Queen of Trumps as the best cow; while his especial success does not even end here. The Londonderry meeting inaugurated another challenge-cup for the best three horned animals shown in the same section, and the master of Athelstaneford claimed this also with three beautiful heifers, all of his own breeding. So generally good were they, that in a remarkably superior class of over thirty, they were only just separated. One took the first prize, and the other two were highly commended. Mr. Barnes' heifer, which interfered, and had second honours, was a great favourite with the judges. She is sure to go on improving, and in another year will be a very formidable opponent. Her touch is peculiarly fine, and she has some other capital "points" that only require further developing. Captain Ball made a good fight for the Waterford cup with four heifers, all home-bred; three of which were commended. Under ordinary circumstances he might have fully expected to take it; but to beat Mr. Douglas is now to beat the world. We are sorry to say that the latter, although in Londonderry, was too ill to appear on the show-ground.

The meeting received another considerable accession of strength from Scotland in Mr. Tod, of Elphinstone, who had the best aged bull and the second-best cow. His bull is a long, square, but by no means perfect beast. Although we cannot say why, the Irish shows are never very good in male animals. The old bulls were quite a secondary lot, with one or two very inferior animals amongst them. But the repute of the meeting was saved by the twenty yearlings, all bred in the country, and almost every one a credit to it. Nothing speaks more to the establishment of the breed in the sister-kingdom than such heifers as Captain Ball could show, backed by such young bulls as those of Mr. Challoner, Mr. Barcroft, Mr. Gildowny, and Mr. Tynte. The last-named gentleman's yearling deservedly took the gold medal as the best of all the bulls. He is very handsome, of a fashionable colour, and as he drops to his leg will be a grand framed animal. Perhaps the advance of the sort could not be better proved than by these classes. The two-year-old bulls were much better than their seniors, and the yearlings, again, far better than either. The only shorthorn sent by an Englishman was a two-year-old by the Fourth Duke of Oxford. Mr. Browne, of Swindon, risked the voyage with him, in company with one or two good coarsish Hampshire Downs. They had evidently stood the trip better than the young bull who looked "picked," tucked up, and leggy.

Our Hibernian friends are apparently quite satisfied with the good sort of beast they have now got so firm a hold of. The Herefords they cannot understand or appreciate, for never were there so poor a lot of cows, and heifers more particularly, entered for public competition. Ragged, narrow, and ugly, the judges positively refused to pass sentence on some of them. Then the Devons are "bad milkers," they say, and very few are cultivated; but Lord Charlemont has some fine specimens of them, and none the worse for a little more size than we see here. Another noble lord—Talbot de Malahide—has a fancy for the black Scotch polled cattle, and always shows them with credit. A yet more fancy article is the Kerry; but beautiful indeed as are Sir Edmund M'Donnell's miniatures, they are far too small to make much head-way in these times. They form an agreeable variety in the yard; but it would be rather stretching the argument to tell a farmer that is the sort of thing he should turn his attention to. In short, the modern agriculturists of Ireland have made a most judicious selection. When they want good beef, and plenty of it, they apply to the Shorthorn; and when they want milk, they go to the Ayrshire. The latter made almost as strong a show as the other favoured race. It is seldom indeed that we have seen better cows, with their beautiful deer heads, fine necks, and grand udders. They look better here, too, than they do in Scotland, and have not that bony, wretched frame so frequently associated with a good milker. Sir F. Heygate and Messrs. Boyd, Harrison, and Alexander have done much for Ireland in this respect, and the specimens from their herds they entered at Londonderry would hold their own anywhere. An Ayrshire or an Alderney bull must be a difficult animal to judge; but we believe there is a scale of points to which, no doubt, the canny gentleman had referred, when he prepared his stock for the Glasgow Meeting.

With sheep, Ireland is becoming yet more and more select. There is in reality only one breed now in favour here, and that is the Leicester.—A sort we have been rather prone of late to consider as going out of date, although Mr. Sanday's average is the highest of the year. The use they turn him to, across the channel, is in the improvement of a great coarse animal known as the Connaught sheep, that comes in its thousands and tens of thousands to the fair of Ballianasloe. Let him alone, and this native would not arrive at maturity until three years old. Messrs. Owen and Roberts, however, are trying the Leicester cross with great success, and they are going to very good men for what they want. This was the only creditable class of sheep in the yard. Mr. Owen's two-shear ram—the gold medal sheep—a very level animal, of capital quality, is by one of Mr. Pawlett's flock. His second prize, only a little deficient in the scrag, was bred by Mr. Torr. Then, Mr. Roberts' good-looking shearlings came respectively from the Messrs. Cresswell and Marris, and so tracing on to Holme Pierrepont. The first prize shearling ewes were in the same position at Chester—bought there by Mr. Roberts of Colonel Inge, and sold again on the ground at Derry. The second prize ewes were only depreciated by the introduction of a fifth sheep, that was palpably no match for the other four. Despite, however, a weak place and section or so, the show of Leicester sheep afforded a very good notion of what the breed is.

Not so the Southdowns. If there are not better than "came to Derry city," no wonder they do not make their way in Ireland. There was hardly any competition. Mr. Beale Browne had it quite as much to himself with his Cotswolds—very useful animals. To show the sort of opposition encountered, there were eight rams entered in the shearling class; six the property of Mr. Browne, and two of Dr. Roche—the Doctor's being wofully inferior. The Cheviots and Blackfaces were few in number, and not remarkable in quality; and we may dismiss the other Down sheep as summarily. If they are to tell in Ireland, they must be better represented.

Here, in England, we separate our pigs into large and small divisions—a distinction sometimes without a difference. In Ireland they draw the line of demarcation much more clearly, and draft them out into blacks and whites. No matter what be his size, if a pig is black, against the blacks he must go—a very facile process undoubtedly for the stewards, but one that greatly increases the labours of the judges. Mr. Wilkinson, moreover, thinking that size had a certain priority, entered his first prize Salisbury boar in the first aged class he came to. But, alas! his colour was white-with-blue-spots, and although he was the best of the lot, the judges could not give him the prize and medal, as they would have done, and were only permitted to specially commend him. As it was, the first prize went to what was called an "Essex" pig—a black, but clearly crossed with something larger than the Fisher Hobbs variety. The run in Ireland, however, is still on the Berkshire, and one of the judges confirmed our own opinion, in considering they have now some better than we have at home. Amongst the white, Mr. Wilkinson showed two Yorkshire sows of immense length and size, one of which had a second prize at Chester. For preference, though, we should have taken the smaller Cumberland pigs, two wonderfully good specimens of which were found in the aged boars. It must have been a nice point between Lord Lurgan and the stranger; but his lordship's was only in fair working condition, while Mr. Wilkinson's was far too fat—a common fault with him; and in poorer condition the second prize would have betrayed a certain slackness of loin, which quite warranted the award going as it did. By no means a large show, this was a very favourable display of what Irish bacon is coming to. There was hardly a bad pig presented to his Excellency.

Captain Croker, the late secretary to the society, has quite a Yorkshireman's—and it may be an Irishman's—taste for hog's-flesh and horseflesh. He acted, as he often has before, as one of the judges of pigs; and it is mainly through his exertions that the show of horses has evinced so marked an advancement. At Waterford he got together the strongest show of thorough-bred stallions we ever saw, and yet the first ever brought under the sanction of the Society. But unfortunately the judges and their medical adviser could not agree; and what in the first instance looked like a very proper decision, was spoilt by what, we are still afraid, was undue interference. By no means discouraged, the Captain issued this well-considered prologue to the Londonderry Meeting: "The decisions of the judges in the special prize class, Waterford Show, have caused a good deal of dissension, and, I regret to add, dissatisfaction throughout Ireland. I have been endeavouring to set matters to rights for the future guidance of the judges of horses at our shows. With this view I have placed myself in communication with my brother-secretaries of England and Scotland, receiving from them such suggestions as they thought fit to make. I have also consulted many large breeders of horses in this country, and some of our best veterinarians. With all before me, I have arrived at the conclusion that no agricultural society ought to give a prize to any animal which had a constitutional ailment. I have ascertained, beyond all doubt, that the number of unsound horses, and especially roarers, has increased to a frightful extent. Two and three-year-old colts—confirmed roarers—are now constantly met with at our fairs, and on tracing their pedigree they are proved to be the produce of unsound sires—generally cast-offs from England. As a national society, we are bound to check this great evil by every means in our power. Formerly, in this country, a roarer was hardly ever to be met with. Our council has named a committee of eleven gentlemen to revise our premium-sheet for the coming year. This committee will meet on Thursday next, when I purpose to submit the following rules, which are partly taken from the Royal Society of England and the Yorkshire Society:—The judges are especially instructed not to award a prize to any unsound horse—lameness or other injury produced by accidental causes not to be considered unsoundness; but, in all cases, horses having constitutional unsoundness must at once be rejected. A veterinary surgeon will be in the show-yard, but not in *direct* attendance on the judges, in order that whenever any doubt should arise as to the existence of disease in those animals which they may consider worthy of a prize or commendation, the veterinary surgeon may be called upon to give his opinion thereon. I hope to be able to continue the large prizes we gave in the special prize class, Waterford Show, but I have experienced a sad check by the unfortunate selection of the Dey of Algiers as the recipient of the first thereat. The veterinary is strictly enjoined to offer no opinion whatever as to the merits of the horses, unless specially required to do so by the judges."

But Captain Croker has done even more than this. On his retirement from office he has left a parting present to the Society, in the shape of a pair of claret jugs, for the owner of the best thorough-bred stallion. These are exquisitely modelled in silver, from gold and agate vases brought to this country from Pompeii by the late Lord Lorton. There is only one disagreeable condition attached to their presentation. So handsome do they look, and so useful will they be for friends to drink the winner's health in, that we hardly know how a man will ever make up his mind to part with them again. However, it is another challenge plate; and if Mr. Fowler has not another Caledon ready for next season, we are afraid the claret cup will not be brewed any longer in Lancashire. It will be a difficult thing, moreover, to find another Caledon; for he is the finest horse there has been seen in a show-yard for many a day. The most extraordinary thing is, that, being so near, he was not shown at Chester; the more so as he has already taken some twenty prizes in that district. He could not have failed of being first there. He is a remarkably fine handsome horse, standing sixteen hands high, with great power and liberty, as active as a pony, and as strong as a house. It is seldom a better-topped horse has been seen; and, indeed, had he been quite as true below, he would be worth any money. As it is, there were sundry offers to retain him in Ireland—after all, his native country. Caledon was bred by Lord Caledon's farrier, and is by a well-known horse, Simoom, out of Fortress. He was never trained, but presented by his noble namesake, when a yearling, to Mr. Thompson, a Yorkshire gentleman, on whose decease he passed into Mr. Fowler's hands. Curiously enough, the second prize horse was quite worthy of him; certainly with a more blood-like look, and as neat as a picture. He had, however, neither the size nor the power of the other, although got by a big coarse horse. But he is by far the best-looking Cotherstone we have met with. Here, however, the interest ceased. Of the ten or twelve others entered, about half of them were not sent, and the judges significantly refused to award the third prize. There was the delicate Windisgratz, scarcely thickened a bit since taken out of work; the slack-limbed De Ruyter; and two or three terribly coarse animals, the owner of one of which fired up tremendously when he was assured such a horse could not be thorough-bred. Still Caledon and Steppingstone made quite a show of it themselves; and rarely has there been so good a first and second.

If it were not for the Clydesdales we do not know what notion an Irishman would ever get of a cart-horse. The first entry here was a queer-coloured cob-sized thing, that it would be almost impossible to suppose any man would dare to breed from. Then there was a leggy half-bred skewbald, so flashy a coloured gentleman, that we wonder how such men as Mr. Nainby, or his brother-worship Wetherell, could ever have resisted him. Thirdly or fourthly, there was a bad cross between a Cleveland and a Suffolk; and then there was "a Cleveland or carriage stallion" (*sic*), but certainly not a cart-horse. The class, however, was saved by one of the best Clydesdales ever known in Ireland, shown by Lord Dufferin, who has had him now for two seasons. He is a very compact powerful horse, good behind as well as before, and really a treat to look at. The two other Clyde stallions were both superior; but the draught mares and fillies were not of so high a character. The Clydesdale had the best of it here again; while we saw amongst them what we never did before, a *chestnut* Clydesdale. Is this orthodox? or would not a black Suffolk be as correct? Our idea of the Clyde colour has been bay, brown, or grey.

A small and very indifferent poultry show, with some good firkins of butter, and other specimens of produce, flanked the more important business of the scene.

When we say that two guineas a night was asked for a bed, those who were not present may imagine how many were. But then there was a grand banquet and a grand ball, as well as a grand cattle show: and as the Lord-Lieutenant would, it was known, be there, fair ladies and fine gentlemen crowded in accordingly. The reception Lord Eglinton met with, at this dinner, would go far to argue that the most impolitic thing a government could do would be to abolish the office of Lord-Lieutenant. But our present representative in Ireland is unusually popular, and, it would appear, deservedly so. His Excellency delivered a very good address, conceived in the best taste, and even making the facts and figures tell. There were some other suggestive and earnest speakers; but, altogether, the thing is not well managed. A party of six or seven hundred people did not sit down till past seven, and did not break up before midnight. There are few better friends to the Society than Lord Clancarty, the new President; but he has one almost fatal drawback for the office. His Lordship had not a toast to give, or even a suggestion to offer, but he made it the occasion for a long speech; whereas, considering the length to which his list ran, he could hardly have been too short, sharp, or decisive. We confess to not sitting it out; but some of the guests were getting very noisy when we left, and fairly lost their tempers, we hear, before it was over. There is no greater mistake than wearying out an audience, while nothing looks worse than to see a chairman gradually deserted by his company.

PRIZE-LIST.

SHORTHORN BULLS.

JUDGES.—T. Crofton, Holywell, N.B.
W. Torr, Aylesby, Lincoln.
H. Watson, Keillor, N.B.

Bulls calved on or after the 1st of January, 1858, and previous to the 1st of January, 1856, 15*l*., William Tod, Elphinstone Tower, Tranent (Young Heir-at-Law). Second best, 5*l*., Sir F. W. Heygate, Bart, Ballarena (Orpheus).

Bulls calved in the year 1856, 15*l*, John M'Gildowny, Clare Park, Ballycastle (Stockwell the Second). Second best, 5*l*., Jaffray Barcroft, Kilboggett, Cabinteely (The Beau of Kilbogget). Commended, Thomas Cather (Napoleon)

Bulls calved on or after the 1st of January, 1857, 15*l.*, gold medal, and medal as breeder, Joseph P. Tynte, Tynte Park, Dunlavin (Sir Colin). Second best, 5*l.*, Richard Chaloner, King's Fort, Moynalty (Bridegroom). Commended, Charles L. Ellison (Baron St. Leonards), Charles Seaton (Jacob Faithful).

SHORTHORN COWS.

Cows, in-calf or in-milk, of any age, 10*l.*, James Douglas, Athelstaneford Farm, Drem (Rose of Athelstane). Second best, 5*l.*, William Tod (Sarah). Highly commended, George Vaughan (Village Maid). Commended, Sir F. W. Heygate (Queen of the Meadow).

Heifers, in-calf or in-milk, calved in 1855, 10*l.*, N. M. Archdall, Crocknacrieve, Enniskillen (Ada). Second best, 5*l.*, Sir F. W. Heygate, Bart. (Sweetbriar).

Heifers, in-calf or in-milk, calved in the year 1856, 10*l.*, Purchell cup, gold medal, and medal as breeder, James Douglas (Queen of Trumps). Second best, 5*l.* J. Douglas (Venus de Medicis). Highly commended, J. W. Maxwell (Moss Rose). Commended, Hamill Smith (Maiden).

Heifers, calved on or after the 1st of January, 1857, 10*l.*, James Douglas (Lady of Athelstane). Second best, 5*l.* Thomas Barnes, Westland, Moynalty (Lady Hopewell). Highly commended, Thomas Ball (Nathalie), J. Douglas, (Titania), J. Douglas (Maid of Athelstane). Commended, T. Ball (Miss Goldschmidt), T. Ball (Pride of the Sea), Lord Lurgan (Blink Bonny). Mr. Douglas's heifers took the Waterford Cup for the three best heifers together.

OTHER BREEDS.

JUDGES.—J. Collier, Panlalthy, Forfar.
D. Hastings, Orangefield, Belfast.
H. Shanks, Edinburgh.

Hereford Bulls, calved on after the 1st January, 1853, 10*l.*, Samuel Gilliland, Brook Hall, Londonderry (Jolly Miller the 3d).

Devon bulls, calved on or after the 1st January, 1853, 10*l.*, Earl of Charlemont, Merino, Dublin (Volunteer).

Polled Angus or Galloway bulls, calved on or after the 1st January, 1852, 10*l.*, Lord Talbot de Malahide (polled Angus, Lucullus).

Ayrshire bulls, calved on or after 1st January, 1853, 10*l.*, John Alexander, Newtownlimavady (Counsellor Greer). Highly commended, Henry Harrison (Madman).

West Highland bulls, calved on or after the 1st January, 1853, 5*l.* No merit.

Kerry Bulls, calved on or after 1st January, 1853, 3*l.*, Sir Edmund M'Donnell, Newhaggard, Lusk (Mangerton). Highly commended, Edward Christopher Irvine (Ned of the Hills).

COWS.

Hereford, Sussex, or long-horned Leicester cows, in-calf or in-milk, of any age, 4*l.*, Samuel Gilliland, Brook Hall, Londonderry (Hereford, Pale Face).

Hereford heifers, in-calf or in-milk, calved on or after 1st January, 1855, 3*l.* No merit.

Hereford heifers, calved on or after the 1st January, 1857. 3*l.* No merit.

Devon cows, in-calf or in-milk, of any age, 5*l.*, Henry L. Prentice, Caledon (Beauty). Commended, Earl of Charlemont (Young Rose).

Devon heifers, in-calf or in-milk, calved on or after the 1st January, 1855, 4*l.* No merit.

Devon heifers, calved on or after the 1st January, 1857, 4*l.* No merit.

Polled Angus or Galloway cows, in-calf or in-milk, of any age, 5*l.*, Lord Talbot de Malahide (Angus, Maid of Angus).

Polled Angus or Galloway heifers, in-calf or in-milk, calved on or after 1st January, 1855, 4*l.*, Lord Talbot de Malahide (polled Angus, Fanny). Commended, Lord Talbot (polled Angus, Rose the Second).

Polled Angus or Galloway heifers, calved on or after 1st January, 1857, 4*l*, Sir Frederick Wm. Heygate, Bart. (Galloway, Bilberry).

Ayrshire cows, in-calf or in-milk of any age, 4*l.*, John R. Boyd, Ballymacool House (Spangle). Very highly commended, Sir F. W. Heygate (Myrtle). Commended, Anthony Babington (Chance).

Ayrshire heifers, in-calf or in-milk, calved on or after 1st January, 1855, 3*l.*, Sir F. W. Heygate (Dewdrop). Highly commended, James Watson (Beauty). Commended, James Wight (Dewdrop).

Ayrshire heifers, calved on or after the 1st January, 1857, 3*l.*, Henry Harrison, Holywood House (Nectim).

West Highland cows, in-calf or in-milk, of any age, 4*l.*, William and Thomas Orr, Glenarm (Marchioness of Bredalbane).

West Highland heifers, in-calf or in-milk, calved on or after the 1st January, 1855, 3*l.* No entry.

West Highland heifers, calved on or after the 1st January, 1857, 3*l.*, Earl of Charlemont, Marino, Dublin (Jenny Lind).

Kerry cows, in-calf or in-milk, of any age, 3*l.*, Sir Edward M'Donnell. Commended, Sir Edward M'Donnell (Beauty).

Kerry heifers, in-calf or in-milk, calved on or after 1st January, 1855, 2*l.*, Right Hon. John Wynne, M.P. (Mag). Commended, Sir Edward M'Donnell (Annie).

EXTRA PREMIUMS.

To be competed for by *bona fide* tenant farmers of Ireland not paying more than 100*l.* a-year of rent.

Cows, in-calf or in-milk, of any age, 3*l.*, Francis Lindsay.

Heifers, in-calf or in-milk, calved in 1855, 3*l.*, Matthias Harford, Moate.

Breeding sows, over eighteen months, 3*l.*, R. G. Glen, Kilfennan.

Sows, under eighteen months old, 2*l*, Matthias Harford.

THE PURCELL CHALLENGE CUP,

VALUE ONE HUNDRED SOVEREIGNS,

For the best animal in the neat cattle classes, possessing most merit of its kind, James Douglas, for Queen of Trumps.

The above cup is liable to be challenged for every year, until won three years successively by the same person. The original cup was finally won at Armagh, in 1854, by Charles Towneley, of Towneley Park, Lancashire, who thereupon presented a new cup of equal value to the society.

WATERFORD CHALLENGE CUP,

VALUE ONE HUNDRED SOVEREIGNS.

For the best lot of three horned animals (bulls or heifers) not in mixed lots, not exceeding twenty months old, having been bred by exhibitor, and *bona fide* his property, James Douglas, Athelstaneford, for Lady of Athelstane, Maid of Athelstane, and Titania.

The best of all the prize bulls, the gold medal, Joseph P. Tynte, for Sir Colin.

The best of all the prize cows and heifers, the gold medal, James Douglas, for Queen of Trumps.

HORSES.

JUDGES.—C. M. Nainby, Barnoldby, Grimsby.
Hon. R. G. Talbot, Ballynchy, Dalkey.
W. Wetherell, Durham.

Stallions of any breed, for agricultural purposes, foaled on or after the 1st January, 1851, and previous to the 1st January, 1856, 30*l.*, Lord Dufferin and Clandeboye, Clandeboy, Belfast (Clydesdale, Sir William Wallace). Second best, 10*l.*, Sir Frederick W. Heygate (Clydesdale, Ploughman). Commended, George Bennett (Clydesdale, Milton).

Stallions of any breed, for agrcultural purposes, foaled on or after the 1st of January, 1856, 15*l.*, John Glen, Letterwell, by Helensburg, Dumbartonshire (Clydesdale, Scotchman).

Draught mares in foal, or with a foal at foot, or having reared foals in the year 1858, 10*l.*, Nicholas M. Archdall, Crocknacrieve, Enniskillen (Princess). Second best, 5*l.*, Samuel Hill, Carrymuddle, Myroe (Clydesdale, Jessie). Commended, Sir F. W. Heygate (Clydesdale, Nannie), Wybrants Olphert (Lizzie).

Draught fillies, foaled in the year 1855, 5*l.*, James Akinlas, Glasgow (Clydesdale, Queen Mary). Second best, 3*l.*, W. D. Porter, Elagh House, Londonderry (half-bred Clydesdale, Jessie).

Draught fillies foaled on or after the 1st January, 1856, 5*l.* None sent.

Draught fillies foaled on or after the 1st January, 1857, 5*l.*, Anthony Babington, Creevagh, Londonderry (Clydesdale, Nancy). Second best, 3*l.*, James Wheeler Chapman, Carton, Maynooth (Clydesdale chesnut, Kate).

SPECIAL PREMIUMS.

For any pure and distinct foreign breed, suitable for agricultural purposes or heavy draught.

Stallions of any Age.—1st prize, 500 francs. 2nd, 300 francs.—None sent.

Mares of any Age.—1st prize of 400 francs, Edward C. Irvine, 11, Eccles-street, Dublin (grey harness, Belgian).

THOROUGH-BRED STALLIONS.

For the best weight-carrying thorough-bred stallion £30, the large medal, and a silver challenge piece of plate value £50, presented by Captain Croker, Hugh Fowler, Preston (Caledon, by Simoom). Second best, £15 and the small medal, Archibald Moon, Lisnamuck, Blackhill, Coleraine (Steppingstone, by Cotherstone).

SHEEP.

Judges.—R. Reynell, Killynan, Westmeath.
W. Torr, Aylesby, Lincoln.
A. Wright, Christorphine, Edinburgh.

LEICESTERS.

Shearling rams, £10, Thomas Roberts, Strokestown. Second best, £5, Thomas Roberts.

Two-shear rams, £10 and medal, William Owen, Blesinton. Second best, £5, Wm. Owen.

Rams of any other age, not exceeding six years old, £5, Thomas Roberts. Second best, £3, Thomas Marris, Ulceby, Lincoln.

Pens of five shearling ewes, £10, Thomas Roberts. Second best, £5, William Owen.

Pens of five ewes, not exceeding five years old, £10, Thomas Marris. Second best, £5, Robert W. Creswell, Ashby-de-la-Zouche.

Pens of five ewe lambs, £5, Sir Frederick W. Heygate.

OTHER LONG-WOOLLED SHEEP,

NOT QUALIFIED TO COMPETE AS LEICESTERS.

Shearling rams, £10, T. Beale Browne, Andoversford. Second best, £5, T. Beale Browne.

Two-shear rams, £8, T. Beale Browne. Second best, £4, T. Beale Browne.

Rams of any other age, not exceeding six years old, £5, T. Beale Browne. Second best, £3, Charles J. Knox, Jackson Hall, Coleraine.

Pens of five shearling ewes, £5, T. Beale Browne. Second best, £3, T. Beale Browne.

Pens of five ewes, not exceeding five years old, £5. Second best, £3.—No entry.

Pens of five ewe lambs, £4.—No entry.

CHEVIOTS, OR ANY OTHER MOUNTAIN BREED.

Rams of any age, not exceeding five years old, £3, Marquis of Conyngham, Slane Castle. Second best, £2, Sir Frederick W. Heygate.

Pens of five shearling ewes, £3, Marquis of Conyngham. Second best, £2, Marquis of Conyngham.

Pens of five ewes, not exceeding five years old, £3, Marquis of Conyngham. Second best, £2, Marquis of Conyngham.

BLACK FACES.

Rams of any age, not exceeding five years old, £3, Sir F. W. Heygate. Second best, £2, William Hunter, Gweedore.

Pens of five shearling ewes, £3, Sir Frederick W. Heygate.

Pens of five ewes, not exceeding five years old, £3, Sir F. W. Heygate.

SOUTHDOWNS.

Shearling rams, £4, Thomas Roberts, Strokestown.

Rams of any other age, not exceeding five years, £4, Thomas Roberts.

Pens of five shearling ewes, £3, Thomas Marris.

Pens of ewes, not exceeding five years old, £3, Thomas Roberts.

FOR OTHER SHORT-WOOLLED SHEEP, NOT PURE SOUTHDOWNS.

Shearling rams, £4, P. Broughton, Moynalty (Shropshire).

Rams of any age, not exceeding five years, £4. J. Browne Upcott, Swindon (Hampshire).

Pens of five shearling ewes, £3. No merit.

Pens of ewes, not exceeding five years old, £3, Lord Londonderry (Shropshire).

SWINE.

Judges.—Captain Croker, Ballynagarde, Limerick.
H. M. Richardson, Rossford, Fermanagh.
H. Thurnall, Royston.

BLACK.

Boars under eighteen months old, 5*l*., Robert George Glenn, Kilfennan. Second best, 3*l*, T. W. D. Humphreys, Miltown House, Strabane. Highly commended, John Hemphill, H. Stanley M'Clintock.

Boars over eighteen months and under thirty-six months old, 4*l*. and medal for breeder, Thomas M'Evoy, Waterside, Londonderry. Second best, 2*l*., Robert George Glenn, Kilfennan. Very highly commended, Joseph Wilkinson, Leeds. Commended, Henry Harrison.

Best Boar in the above sections, the Medal, T. M'Evoy, Waterside, Londonderry.

Breeding sows under eighteen months old, 4*l*, James Moore, Loughesk, Dunamanagh. Second best, 2*l*., James Sinclair, jun., Dromore, Coleraine. Highly commended, Rev. Edward J. Hamilton, Charles Powell.

Breeding sows over eighteen months old, 3*l*., H. Stanley M'Clintock, Randalstown. Second best, 2*l*., George Hanson, jun., Macleary, Coleraine.

Lots of three breeding sow pigs of the same litter, not more than ten months old, 3*l*., Robert G. Glen, Kilfennan. Second best, 2*l*., H. Stanley M'Clintock.

WHITE.

Boars under eighteen months old, 5*l*., Chares L. Ellison, Loughglynn, Frenchpark.

Boars over eighteen months and under thirty-six months old, 4*l*. and medal for breeder, Lord Lurgan, Brownlow House, Lurgan. Second best, 2*l*., John Milford, Spring Vale, Belfast.

Best boar in the above sections, the Medal, Lord Lurgan.

Breeding sows under eighteen months old, 4*l*., Joseph Wilkinson, Leeds. Second best, 2*l*., Anthony Babington, Creevagh, Londonderry.

Best breeding sow over eighteen months old, 3*l*., Joseph Wilkinson, Roundhay, Leeds. Second best, 2*l*., Sir F. W. Heygate. Commended, J. H. Peart, William Boyle.

Lots of three breeding sow pigs of the same litter, not more than ten months old, 3*l*., Henry L. Prentice, Caledon. Second best, 2*l*., A. Babington, Creevagh, Londonderry.

DAIRY PRODUCE.

Judges.—J. Hardman, Londonderry.
H. Haslett, Londonderry.
Alderman Mackay, Dublin.

BUTTER.

Firkin of butter, 70lbs. weight, independent of the firkin, suited for the English or London market, and made on the farm of the exhibitor during the season of 1858, 5*l*., Henry Leslie, Drumslade, Coleraine. Second best, 3*l*., David Forrest, Dromore, Newtownlimavady. Third best, 2*l*., Robert Macrory, Ardmore Lodge, Newtownlimavady.

Darymaid whose butter won the first prize, 1*l*.; second, 15s.; third, 10s.

Coopered six butter firkins, suitable for the English and London market, 1*l*. 10s., John O'Neill, Fountain-street, Londonderry.

Firkin of butter, 70lbs. weight, independent of the firkin, suited for the foreign market, and made on the farm of the exhibitor during the season of 1858, 5*l*., Baptist Gamble, Graan, Enniskillen. Second best, 3*l*., Baptist Gamble. Third best, 2*l*., Anthony Babington, Creevagh, Londonderry.

Dairymaid whose butter won the first prize, 1*l*.; second, 15s.; third, 10s.

Coopered six butter firkins, suitable for the foreign market, 1*l*. 10s.

Cool of butter, 30lbs. weight, independent of the cool, and made on the farm of the exhibitor during the year 1858, 3*l*., Henry Leslie, Drumslade, Coleraine. Second best, 2*l*., John M'Kinney, Kilfennan, Derry.

For the best of all the prize butter exhibited at the Show, the Medal.

CHEESE.

Couple of new milk cheeses made in Ireland, of the season of 1858, in imitation of any known and approved description of English cheese, not less than 20lbs. weight each. First prize, 5*l*. Second, 2*l*. No merit.

FLAX.

Bundles, not less than 16lbs. weight, of mill-scutched flax, being an average sample of the produce of at least half an acre of British growth, and of the crop of either the year 1857 or 1858. First prize, 3*l*., William Patten, Glasslough. Second, 2*l*., John F. Wilson, Londonderry.

A bundle, not less than 16lbs. weight, of hand-scutched flax, being an average sample of the produce of at least half an acre of British growth, and of the crop of either the year 1857 or 1858—first prize 3*l*., William Patten, second 2*l*., Charles Glaskin, Newtoncunningham.

A bushel of flaxseed saved by the grower, 3*l*., David Patten; second 2*l*., John Boyle, Leeds. Commended, John Wightman.

Six hanks of handspun yarn, 1*l*. For the second best, 10s. No entry.

CEREALS AND GRASS SEEDS.

Collection of cereals and grass seeds, 3*l*., Dickson, Hogg, and Robertson; second best, 2*l*., James Sherrard, Bishop-street, Londonderry. Commended, James M'Canaughty; highly commended, the Earl of Charlemont.

IMPLEMENTS.

JUDGES.—J. Clarke, Long Sutton, Lincoln.
J. C. Coddington, Dulargy, Co. Louth.
R. M'Rea, Strabane.

(Prizes given for implements best suited to the wants and circumstances of Ireland).

The best implement for the application of steam power to the cultivation of the soil, 50*l*.—No award.

The best mowing machine suitable for cutting meadow grass, 20*l*.—H. Clayton (Wood's patent mowing machine).

The best reaping machine, 25*l*.—H. Clayton (Wood's patent reaping machine).

The best hay-making machine, 5*l*.—Smith and Ashby. Highly commended, Richmond and Chandler.

The best horse rake, 3*l*.—Richmond and Chandler. Highly commended, Smith and Ashby; commended, R. Gray.

The best plough for general purposes, 5*l*.—J. Gray and Co. Highly commended, Richmond and Chandler (Howard's.)

The best instrument for breaking up the subsoil, 5*l*.—Robt. Gray. Highly commended, J. Gray and Co.

The best heavy harrow, 3*l*.—E. H. Bentall.

The best light harrow, 3*l*.—E. H. Bentall. Commended, R. Gray, and Richmond and Chandler.

The best grubber, 5*l*.—J. Gray and Co. Highly commended, R. Gray; commended, J. Gray and Co. and R. Law.

The best drill grubber, 3*l*.—Robert Gray. Highly commended, J. Gray and Co.; commended, R. Gray.

The best drill horse hoe, 2*l*.—H. Carson. Highly commended, H. Carson; commended, Robert Gray.

The best corn drill for general purposes, 5*l*.—W. L. Fisher.

The best corn drill for small occupations, 5*l*.—Richmond and Chandler. Highly commended, R. and J. Reeves; commended, W. L. Fisher.

The best turnip drill, 3*l*.—J. Gray and Co. Highly commended, Richmond and Chandler.

The best implement calculated to economize labour in raising the potato crop, 5*l*.—Robert Law.

The best machine for distributing portable manure broadcast, 5*l*.—R. and J. Reeves.

The best and least expensive liquid manure carriage and distributor, 5*l*.—I. James.

The best machine for sowing grass seeds and clover broadcast, 5*l*.—Richmond and Chandler. Commended, H. Sheridan.

The best farm cart, 5*l*.—Richmond and Chandler. Highly commended, Robert Gray; commended, J. Mitchell.

The best set of hand implements for the farm, 3*l*.—Richmond and Chandler.

The best set of drainage tools, 3*l*.—Kennan and Sons.

The best assortment of drainage tiles, 3*l*.—The Earl of Enniskillen. Highly commended, J. Robson.

The best and most economical set of farm harness, 3*l*.—No award.

The best and most economical cart and cattle weighing machine, adapted to general purposes, 5*l*.—Forshaw and Co.

The best assortment or collection of field gates, 5*l*.—Musgrave Brothers.

The best churn, 5*l*.—J. Gray and Co. Highly commended, J. Eastwood; commended, Robert Gray.

The best model of a portable shed for foddering and feeding unhoused cattle, 10*l*.—No entries.

The best general collection of implements, 20*l*.—J. Gray and Co. The second best, 10*l*.—Richmond and Chandler. Highly commended, Robert Gray.

THE IRISH FARMERS' GAZETTE CHALLENGE CUP,

VALUE FIFTY GUINEAS.

For the best general collection of implements, manufactured by exhibiter, and suited to the agriculture of Ireland.—J. Gray and Co., Uddingston, Glasgow.

The JUDGES of POULTRY were Captain Croker; J. M. D'Olier, Collynes, Dublin; and G. A. Pollack, Oatlands, Navan.

THE SHOW AND TRIALS OF IMPLEMENTS.

[FROM OUR OWN CORRESPONDENT.]

The show of implements, as compared with last year, was more numerous, the number of stands being 85, against 58 at Waterford; but we missed Garrett's very excellent collection of last season. There was a great improvement in the order of ploughs, most of the manufacturers adopting the acknowledged and established pattern or model of the best English ploughs. The excellence of workmanship stands fully at A 1. We never see the high polish anywhere else so perseveringly carried out as by the Irish and Scotch makers, quite eschewing paint, to say nothing of putty. Messrs. Gray & Co., of Uddingston, and Mr. Robert Gray, of Belfast, stand very high in this respect. In fact it will apply to most of the minor manufacturers: the high polish bestowed upon a common farm plough is extraordinary. Kennan's stand was one of capital manufacture: and Richmond and Chandler had an astonishing show of hand implements.

The exhibition took place on the Quay and Stock and Corn Markets, and although very convenient for landing, was inconvenient in some other respects. The exhibitors found great difficulty in making their implements stand steadily on the hard pavement, and consequently a great uprooting of paving was necessary, which ultimately may lead our Derrians to a more level adjustment, avoiding those deep reservoirs for water, which we observed here. And then the difficulties of our stable-fitting friends were great, several stands of which did them great credit. For ourselves we much prefer the soft greensward and gay huts or sheds in the open parks. But every visitor to Londonderry saw that such could not readily be obtained.

The trial of field implements took place on the estates of Major Scott, at Wilsboro', and of Wm. M'Cormick, Esq., near the Muff Station. The latter is here called slob-land, *i. e.*, land recovered from the sea before being grassed over, as in the case with the English marshes. It is a deep soil, of rather heavy loam, recently reclaimed, and being inefficiently drained, formed a severe trial for Boydell's traction engine, which more than once became imbedded in one or other of the cross-grips. The trial of ploughs and subsoilers took place in the bottom field, and grubbers in a field near the station. The mowing machines, also, were close at hand, and the reaping machines and potato-diggers on Major Scott's farm. The trial of steam-ploughs was first commenced; the competitors, Messrs. Boydell and Fowler. Boydell having his traction engine, with three ploughs and Cotgreave's trenching apparatus combined; Fowler, his prize steam-plough, of the Chester Meeting. Descriptions of both these engines and ploughing apparatus have so often appeared in the *Mark Lane Express*, that we shall forbear any detailed account now. We did not notice anything new in either engine or implement. The judges commenced work in a systematic way; land was marked out, coals weighed, time taken, steam got up, and the start given at 9.56, Boydell's with a pressure of 70lbs., and Fowler's of 65lbs., to the square-inch. For a time all went on well, but at 10.55 Boydell's was fast in a cross-grip recently filled in; he started again at 12.37, ploughing and subsoiling, with two ploughs, at a depth of about 13 inches; in another bout or two, owing to a heavy shower softening the land, and notwithstanding every precaution of planking the grips, the engine became again imbedded, and was not put again into competition during the day. It was at length got out in the evening, and placed on safe ground. On Thursday it was to be tried at Temple Moyle, near Derry. Fowler worked awhile with his frame of four plough-bodies, but finding the public were desirous of seeing his trenching work, the trenching-bodies frame was attached, and excellent work was accomplished—such, in fact, as we have not before seen him effect; the deep loam much softened forming no great obstacle. The crowding now became so great, and the impossibility of keeping a clear course being evident, the judges left the manager to work for some hours, whilst they went to test ploughs, subsoilers, harrows, &c. Subsequently, on the dispersion of the crowd, time was again taken and land measured, and the ploughman directed to follow the course adopted in this district to plough with horses going slowly. He did so; and finished the acre in one hour and nineteen minutes, doing the work in a truly business-like manner. On Tuesday he performed for the public inspection. Woofe tried his well-known parer, which worked fairly; but the surface was stiff, and broke considerably. He appeared to give great satisfaction.

PLOUGHS.—In the common ploughing for testing the merits of the various ploughs were Messrs. R. Gray, of Belfast; John Gray and Co., of Uddingston, near Glasgow; Law, of Shettleston, near Glasgow; Sweeny, of Drumarky, Limerick; Gallagher, of Strabane; Barber, of Londonderry; Allen, of Moneymore; Richmond and Chandler; and a second plough of Gray, of Uddingston; the competition was exceedingly good—far better than at Waterford. All were subjected to the test of the dynamometer. The palm lay between Gray's, (of Uddingston) No. 2 and Richmond and Chandler's ploughs, both much upon the same model, the latter being Howard's plough P 2, Mr. Norton showing it as agent. The prize was at length borne away by Gray and Co., and certainly with a very superior plough, of light draught, and nearly a perfect model. We question the desirability of manufacturers permitting their agents to attempt to win prizes in these close competitions, unless an especial ploughman can be had. Messrs. Richmond and Chandler did all they possibly could to ensure a fair trial for their plough, but not a single Irishman could be found who could work a wheel-plough; consequently the work was indifferently done. The plough, however, received a high commendation.

SUBSOILERS.—In this class Messrs. Gray, Gray and Co., Laws, Richmond and Chandler (Lord Beauclerk's), Bentall, and Sheridan were competitors. The dynamometer showed a marked difference in the power required, but it was not easy to tell the amount of soil moved; each, however, was fixed to work at a depth of six inches below the furrow-sole. Gray's, of Belfast, denoted the lightest draught at this depth, and consequently received the prize; but we question its applicability as a general subsoiler: it is too small.

GRUBBERS.—These implements belonged to Messrs. Gray, Gray and Co., Laws, and Sheridan, and were merely taken out to satisfy the judges respecting a decision made in the yard without trial, which proved decidedly correct. All worked well, but Gray and Co.'s the best.

MOWING MACHINES.—The field was so full of deep grips, that it was with great hazard to the machines that the judges were enabled to come to any test of merit; just enough only was done to show the capability of each. Messrs. Dray and Co., Gardiner, Wood (Manning's patent), and Banks (disc machine) were competitors; but it was soon seen that Manny's had the superiority.

HAYMAKERS were also very imperfectly tried, the day turning out wet, and then, those terrifying grips! However, Messrs. Sheridan's, Smith and Ashby's, and Richmond and Chandler's (Nicholson's) were tried as well as circumstances would permit, and the prize was again awarded to Smith and Ashby, and, so far as we could observe, deservedly, for it threw up the green clover to a great height, the wind scattering it all directions. The others scattered it more regularly behind it, but did not throw so high.

DIGGERS. — These were all after Hanson's patent, and, when properly adjusted, made equally good work: some little difference in details in the construction, therefore, guided the judges.

REAPERS.—This trial took place amidst a heavy fall of rain, and, of course, militated against the working of those possessing complicated machinery. There were on the ground Burgess and Key's, exhibited by a neighbouring gentleman who had bought it, Clayton and Co.'s, Gardiner's, Dray and Co.'s, and Bank's disc machine. The field of oats was rather light and grassy. Mr. Macrory is an extensive miller and farmer, and not conversant with the working of Burgess and Key's machine; he had also to hire a pair of strange horses—small Irish

—by no means powerful enough for working this rather cumbrous reaper; consequently the work was badly done, and in this trial this valuable machine could not retain its well-acquired fame. Cartwright and Lindsey had two machines. The one of one-horse-power did its work fairly, but it was hard for the horse; the other was a two-horse machine, both having a back-delivery, and, of course, requiring to be cleared away before the next bout could be taken: this took up many hands, and it was almost ridiculous to see the number following and engaged. The machine is a very useful one, but exhibiters should take care not to condemn it themselves by such an unnecessary display of its requirements: we counted no less than fourteen persons engaged on and about the machine. Dray and Co. exhibited Hussey's improved reaper, which, owing to the exceedingly wet state of the crop and the late hour it was enabled to commence, did not succeed so well as usual; but we thought in this trial it must take second place. The first was on all hands given to Clayton and Co.'s machine (Manning's patent), which, notwithstanding every obstacle, made most excellent work, and finished the three roods appointed for each in forty-five minutes, laying the sheaves in convenient heaps for tying. Banks' disc machine received injury, and the rain pouring down in torrents, the judges quitted the field before it could be got in readiness. The discs of this revolve horizontally, and have tackle with which the corn is drawn through the frame into a continuous line behind. This we thought in most cases would be impracticable; but as we did not see it in operation, we cannot give a decisive opinion. In our judgment, we have as yet no better machine than Manny's patent for reaping corn; and we were given to understand that the judges thought it very far ahead. We must allow it was rather an imperfect trial; so much so, that they could not award a commendation, as no other did comparatively good work.

The yard exhibition was a very creditable one, well supported as it was by both home and more distant firms. The chief success was here, again, with Gray, of Uddingston, who took the first prize for a very excellent collection of implements. It is now ten or twelve years since this Scotch house has entered at the Irish shows, and its return was signalized by some very deserved triumphs.

THE DINNER,

Or "Grand Banquet" as it was termed, took place on the Wednesday in the Pavilion — the Earl of Clancarty, the new president of the society in the chair; supported by his Excellency the Lord Lieutenant, the Mayor of Derry, Lords Berners, Erne, Dunlo, Leitrim, Lifford, Abercorn, and Talbot, de Malahide, the Bishop of Derry, Sirs H. H. Bruce, F. W. Heygate, Percy Nugent, E. Hayes, R. A. Ferguson, and R. Bateson, General Gough, Colonel Dunne, Admiral Hamilton, Captains Cockerell and Croker, and nearly six hundred others, consisting chiefly of landed proprietors and citizens of Londonderry. The toast list embraced an unusual number of subjects, while the different addresses with which they were associated were as remarkable for their length.

In responding to the compliment paid him, Lord Eglington thus proceeded—I do not hesitate to say that these meetings yield in importance to nothing else; and that the impetus they give to every branch of farming industry, and the self-reliance they bring with them, are of the utmost possible benefit to the country. I believe that their utility does not end here, but that they bring together men of all classes and parties of politics, in friendly and praiseworthy competition, which must have the most salutary and enduring effect in softening down social and sectarian animosities. I must congratulate the Royal Agricultural Society of Ireland on the success of the show today, a success I think which must have come up to their most sanguine expectations; and, I think, I am justified in saying, that though, in some respects the show may be, and, of course, it must be, inferior in some respects to the show I saw in Dublin—in other respects, it is not only equal, but I believe it surpasses it. At all events, it is a show such as the North of Ireland may well be proud of. When we consider the enormous property which this society confers a benefit upon—I mean the enormous rental of Ireland, which I know is estimated at £13,000,000—it must be palpable that this society is one which ought to be encouraged by every one who has the welfare of the country at heart; and I rejoice to know that since I was last among you the progress the society has made has been of a most gratifying nature. Since I was last here the members of the society have been nearly doubled: one-fourth has been added to the premiums offered by the society; and the smaller societies, which diffuse in their several localities the greatest possible benefit on Ireland, have also been enlarged one-fourth during the same period. There is nothing which has given me greater gratification during the course of my life than the improvement which I find in Ireland since I was last here. The cloud that appeared at one time to have settled permanently on Ireland has been dispelled. Everything now shines on the Irish. Not only the practice, but the science of agriculture is spreading over the country. Your hills and your rich pastures are teeming with sheep and cattle. Your rents are for the most part, paid with a punctuality not exceeded elsewhere. Your poor-houses are half empty; your labourers are employed; crime has decreased; railways are spreading their useful influences over the country; political strife, I may say, is almost in abeyance; civil and religious liberty are established on so firm a basis that the man who would advocate a return to bigotry would be set down as insane. There is but one plague-spot left and that, I trust, has almost ceased to fester. There is nothing but sectarian animosities standing in the way of Ireland enjoying a happiness and prosperity not surpassed by any nation on the earth, and for which her great internal resources, her fertility, and the genius of her people so eminently qualify her. I may be accused by those who are not intimately acquainted with the subject, of partiality, and of colouring the picture too highly; but, if you will allow me, I will go into that dry subject of figures, and prove that I am correct. I will not go to any distant period, or to any exceptional case, to take my comparison with the present time. I will only go to the time when I was here first, in the year 1852. If I were to go further back, no doubt the comparison might be more striking, but it would not be so fair. I rejoice to say that the improvement is not only progressive, but that it is rapily on the increase. Of course, in such a company, but in Ireland generally—for it is the main interest of Ireland—I will begin with agriculture. There is no doubt that the improvement that has taken place in that interval has been arrived at by great effort, and by very great industrial suffering. For the latter I am not responsible; for the former I take no credit to myself or my colleagues. I merely rejoice in the fact that the prospects of Ireland are bright. During a period, not of a great many years, land to the value of £21,000,000 has changed hands in Ireland; and, as in these days, new proprietors are almost always improving ones, we may calculate that more than ten per cent. has been laid out upon that. We may, therefore, calculate that more than £2,000,000 have been laid out in that way; £5,000,000 have been granted by Parliament for arterial drainage, the improvement of rivers, and £16,000,000 in the way of loan. It is only of late years that the results of these great efforts have begun to tell; but they have begun to tell in a many most satisfactory. The first item that I will lay before you is the enormous increase of live stock in Ireland since the year 1852. In round numbers there has been an increase of 85,000 horses, 570,000 cattle, 750,000 sheep, and 330,000 pigs. Calculating these at the moderate price of 8*l.* for horses, 6*l.* 10s. for cattle, 22s. for sheep, and 25s. for pigs, it comes to the enormous increase in the property of Ireland, in live stock, of 5,716,000*l.* I will now merely state one fact as regards the increase of acreage now under cultivation, notwithstanding the enormous increase of pasturage. In 1852, in round numbers, the acreage under cultivation was 5,739,000; in 1857, 5,881,000, making an increase of 142,700 acres. Then there is another matter which is of the greatest possible importance to Ireland, I mean the decrease of pauperism. I will state a very few figures on that point. The total amount of paupers relieved in 1852 were 190,823; in 1857 they were 59,775 (cheers) almost a decrease of one-half; and in the county of Derry there were 4,691 relieved in 1852, and there are now 3,269. The average of poor rates of Ireland is 1s. in the pound; in England it is 1s. 9d.; in Scotland 1s. 4d. There is only one other item which I will bring before you, and that is the enormous decrease in crime. The total number of offences reported to the Inspector General in 1852 were 7,824; in 1857 there were 4,032, being a decrease of nearly one-half. Of those for homicide there was a decrease of 30 in the small number of 162. Of an entirely agrarian nature there were, in 1852, 100 cases; in 1857 there were only 23. In robberies (burglaries) in 1852 there were 3,426; in 1857, 1,272. Of what I think a most important item, incendiary fires, houghing cattle, in 1852 there were 1,507; in 1857 there were only 755. Of threatening notices in 1852 there were 776; in 1857 only 251. And now I have only one other matter of figures to bring before you, which is that in the case of evictions for non-payment of rent. In 1852 the numbers of evictions were 6,550; in 1857 they were only 919. Gentlemen, I trust I have not wearied you. ("No, no.") I cannot but feel proud in talking of the improvement that has taken place in this country.

The President, in responding to a similar compliment, said: I suppose there never was so large a collection of farming implements at any previous show as there is at the present. There is a thing going on in this country, of which I think that great arm of improvement—the press—should take notice. I allude most particularly to those reaping machines, which would be the means of cheapening the food for those who buy, and would give employment to working men at the same time. His Excellency has alluded to an increase of stock; and if you have an increase of stock, you must have an increase of food for them; and it should be our business as much as possible to encourage the cultivation of the soil, and thereby will the labourer find work. If the labourers endeavour to throw the agriculturist back, by wishing to keep to the old sickle, instead of increasing labour, they will only cause the land to be left untilled; and then there will be no employment for them. I plead most earnestly that the press—that most valuable lever for the improvement of the country—should spread those views that sensible men must entertain on such a subject, and so far as possible change those opinions apparently held by the labouring classes, and so benefit the poor as well as the rich.

Lord TALBOT DE MALAHIDE, in proposing the next toast, said it was that of three societies, all organized for the advancement and promotion of agricultural knowledge. The first was the Royal Dublin Society, which, although the smallest, was yet the oldest in Europe founded for the promotion of agriculture. It was founded in the year 1731, since since which it had laboured unceasingly for the advancement of the agricultural interests of the country. So far back as one hundred years ago, a premium of £100 was offered by it for the cultivation of 100 acres of turnips, and he was proud to say that that premium was won by an Irishman. The next society was the Royal Highland Society of Scotland, which had laboured for half a century to advance the improvement of the Highlands of Scotland; and this it had not only effected, but it had also contributed to the improvement of the Lowlands, and had also aided in bringing them to that state of tillage which made them justly be considered as models of agricultural prosperity. It had also laboured to promote a knowledge of veterinary science—so woefully deficient in this country, and by the publication of a journal which furnishes a lucid record of its proceedings. The third was the English society. It was a great Society; and though last in the field of agricultural usefulness, they should not despise those labourers who entered the field at the eleventh hour. No other society had accomplished more for the agricultural improvement of these islands—he might say the whole civilized world. They know the immense value of the journal of that society also; and they no less admired and respected the list of noble presidents who, from time to time, directed the motions of that society. He was truly happy to say that they had present the noble lord who at present presides over that society. To occupy such a position was truly a great honour—an honour which nothing but the most sterling qualities could secure.

Lord BERNERS, in reply, said—In looking at your show today, and especially on seeing the shorthorns and cattle generally, I was exceedingly gratified. It was a show worthy of some of the elder societies of England. I believe, however, that the great source of the wealth of the country is derived from its agricultural implements. Believe me, those who use most implements engage the greatest amount of labour.

Lord ERNE returned thanks for the Vice-Presidents and Council of the Royal Agricultural Improvement Society of Ireland.—I assure you the Vice-Presidents of the society are not like old pieces of family plate, which are brought out upon state occasions for show, but they are men who are always ready and willing to aid in promoting the interests of the society. They are constant residents in Ireland—men who are always at their posts, willing to assist their own tenants, and to advance their interests. I am happy to tell you that there are many such men in Ireland. The landed proprietors of this country see now that it is their interest, as well as their duty, to reside constantly at home; and it is not only their interest to do so, but they see that by doing so they set a good example. I am rejoiced to think that this meeting has realized our most sanguine expectations. You have already heard some statements from the noble chairman; but I trust you will allow me to add a few words concerning this society. I find that in 1847 we had only 632 members, while now we have 1,200. Our premiums in 1847 only amounted to £792, now they amount £1,350. At that time we had only one challenge cup, now we have four. And, lastly, the society has been most prolific, for it has reared no less than thirty-two young societies, which are all in a healthy and thriving condition. I need not assure you that Ireland is *bona fide* an agricultural country, and that by agriculture alone we must live. We have got a fruitful soil, though we don't cultivate it as we ought. In short, we merely scratch the top of it, and it produces what we call a good crop ; but we don't go into the bowels of the earth, as I may say they do in Scotland. In Scotland it is the reverse with the soil and with the people, for they have there an ungenial soil, and they have to work with their heads as well as their hands ; whereas we have, I may say, the first country in the world. In a short time, however, I hope that we shall be able, if not to surpass, at least to cope with Scotland.

Mr. Torr responded for "The Judges." He congratulated the meeting upon the splendid exhibition which had taken place. He had been present on other occasions, but on none which was more successful. The sheep were good, the cattle excellent, and the implements superior. He considered that the money prizes had conduced much to bring together so many superior implements. He had himself suggested this after the poor display at Armagh. He could personally speak to the great improvement in Ireland, even in this very neighbourhood, through which he had travelled many years since. There was a time when the English had rather a dread of any Irish provisions, but latterly they would prefer being fed by Ireland to any other country, when they could not find enough at home. One still great want in Ireland was that of sheep. He had often before spoken to this. The more sheep they had the better must the land be cultivated. Mr. Torr concluded with a compliment to Captain Croker, of whose services while Secretary to the Society he had the highest appreciation.

The meeting became rather stormy after this, although when we left there were several other names and subjects on the toast list.

CUMBERLAND AND WESTMORELAND AGRICULTURAL SHOW.

This flourishing society held its annual meeting at Penrith, on Friday last, and with very marked success. In consequence of the opening of the classes to the United Kingdom, some "distinguished strangers" entered the lists. Among these was Sir Charles Tempest's two-year-old short-horn heifer "Crinoline," who not only won in her class, but received the silver Challenge Cup medal, as the best animal in all the classes. The judges seemed for some time to waver between her and Sir Charles's bull "Emperor Napoleon," who, after receiving high commendations, both at Chester and Northallerton, took a winning tour to this and the Ulverstone show. Both in quality and make, the cannie Cumbrians pronounced him "almost faultless ;" his head is as sweet as a heifer's, but he is thought to be rather light in his hair. "Bloomer," the prize short-horn cow, had an immense frame, but she was anything but level-fed, and "Lizzie," from Captain Spencer's herd, was in many respects her superior. This gentleman won the first and second prizes in the Yearling Heifer class, with "Sappho" and "Blink Bonny." The former is the calf out of "Lizzie," which he purchased when it was carried into the sale ring at Willesden, some fifteen hours after its birth, for 50 guineas ; and "Blink Bonny" was bred by Mr. Strafford. "Sappho" has done full justice to such a gallant venture, and is quite a picture, especially in her head, and an equally beautiful handler. The pigs and sheep were good, but not especially choice. The entries of the first-named were very scanty, and Mr. Watson, of Bolton Park, did not show anything. The horses came in much greater force, except for the cart-horse stallion prize, in which Young Blythe, who had just won at Ulverstone, was unopposed. British Yeoman reigned supreme among the blood stallions, but Royal Ravenhill has never been shown against him since they met at the Royal Agricultural. Although he is rising nineteen, the old son of Liverpool is scarcely dipped in the back, and was as gay as a kitten. The sight of him in a Cumberland show-yard always elicits not a little enthusiasm ; but both he and Royal Ravenhill were beaten for the two-year-old hunting prize by the stock of Clansman, a son of Barnton. The hunting mares were moderate, and perhaps the germ of the horse show was the prize cart mare from The Knells, near Carlisle. She is lengthy, low on the leg, and, with wondrous quality, so exactly resembles Melbourne in the style of her head, that we might have believed her to be got by him. We could not but regret that she had not been shown at Chester.

The prime amusement of the afternoon was the contest for the hunter prize, the conditions of which required that every horse should jump twelve hurdles. Five of the lot would have disgraced no hunting stable, but the others were common. At the first attempt, all but one, who was ridden barebacked by a clever little "Dick Christian" of a boy, refused point blank ; but they soon warmed to their work, and gave some two thousand lookers-on a very pleasant half-hour of it. The prize was eventually given to the boy's horse, who was of course the deservedly popular candidate, and a horse belonging to Mr. Philip Musgrave—the Master of the Eamont Harriers, who founded it—was placed second, and one of Mr. Parker's highly commended.

The plan carried to this length is certainly novel, but one that hunting-men are not likely to follow, for fear of making their horses confirmed refusers.

The agricultural implements were purely local, and very useful in their character ; and if we have a complaint to make, it is of the very involved and tedious catalogue, which is twice as puzzling as any "Bradshaw," and the immense length of the toast-list—the latter is becoming a sad nuisance at too many agricultural dinners.

KENT CATTLE, POULTRY, AND IMPLEMENT SHOW.

Prompted, perhaps, by the success which has attended the meetings of our national agricultural societies, the last few years have witnessed the establishment or re-organization of several district associations. They have died out as political organs, like that in Essex; and have extended their operations from parishes and hundreds to whole counties, like the Sparkenhoe Club. The latter, indeed, is the now popular plan of proceeding. In place of three or four little gatherings, that are attended with proportionately little effect, the aim is to concentrate these into one respectable focus. Even East Suffolk, doing so well as it was, must embrace the West also. The neighbouring counties on either side are now fairly under weigh with a venture built precisely on the same principle. Of course, however, all cannot flourish alike. The very character and extent of country will go to make one, as it will lessen the influence of another. There is, for instance, no such county show as the Yorkshire, precisely because there is no other such a county. Still, all may in a degree command success if they will only go the right way to work to obtain it.

The past month has ushered into action another of these societies. The Maidstone Christmas Fat Cattle Show has been altered and improved into a summer show of breeding stock and implements, including the whole county in its title and arrangements. But, unfortunately, the whole county would scarcely seem to have been duly consulted on this point. There are, we believe, in Kent three or four other similar associations, which still hold themselves altogether independent of this one. They have certainly gone by no means out of their way to support its opening day, and the rather grave question arises as to where is the blame? Did the managers of the Maidstone fat cattle meeting bodily enlarge themselves, or did they take the proper steps to secure that co-operation they should have had? There is no doubt the district would profit by a good lesson of this kind; in fact, there are few quarters in which it is more wanted. Little good or effect, however, can follow from such a combined exhibition of strength as that we witnessed on Thursday, Aug. 26. In sober sadness, it was the weakest show, for such an extent of country, we ever remember having been present at.

Kent is generally famous for hops, fruit, filberts, and pretty faces. It may still depend upon these by no means despicable attractions. Further than this, in an agricultural point of view, it is renowned for its breed of sheep and make of ploughs—either so peculiarly adapted to the county as to be of little use out of it. Let alone the excitement of hop cultivation, the farmers grow rare wheat and beans; and so we come again to the not uncommon excuse, when a man has little to show you, that "this is not a breeding district." One might, however, expect to find, as we confess we did, a strong entry of the local sheep. As it was, there were nine prizes for pure-bred Kent long-woolled sheep, and eight of these were taken by one exhibiter, Mr. Murton, of Smeeth. For the best yearling rams there were two prizes and two entries—both Mr. Murton's; for the best two-year-old rams there were two prizes and three entries, all Mr. Murton's, and so on. In fact, in the six classes there was only one other breeder who had a Kent sheep to show. None of these were thought to be remarkable for their excellence, but at best we should not think they were not a good sheep to exhibit. Their chief recommendation is a certain hardihood of constitution which enables them to withstand the bleak unsheltered range of Romney-marsh, and at the same time to do the best by the good keep they find there. In neither size, symmetry, nor quality will they compare with the Cotswold, of which there were one or two good specimens on the ground, from the flock of Mr. Slatter, of Cirencester.

Of stock, the Sussex beast has long been the favourite here, and the entries were certainly more encouraging. But Mr. Rigden, one of the judges, could not congratulate the meeting on their quality—"there was plenty of room for improvement." Then the cart-mares and foals were a terribly mixed and ragged lot, with a smart active mare of Mr. Leney's just saving them from condemnation. The Messrs. Pack did better with three Shire horses, backed by a Catlin Suffolk, while a good-looking Voltigeur colt went far to help out this section of the show. As a class, however, of farm horses entered by farmers, it was wofully inferior.

Luckily the Short-horn came once more to the rescue. It was the only really commendable class of the meeting, and Mr. Hales, Mr. Betts, and Colonel Austen sent some generally well-bred, good-looking animals. Mr. Hales' pair of prize cows, for instance, and more especially Mr. Betts' two-year-old bull, and heifer-calf were wonderfully admired—so that it proves a good beast can be appreciated here. For shape, and *quality* more particularly, the judges selected these two young animals as likely to hold their own in any company. Mr. Betts is clearly an acquisition to the neighbourhood, and his example should not be without its effect. Mr. Gillett, one of the judges, declared he had never seen a property so well managed.

The display of implements was altogether far better, made up, as it was, of such firms as those of Bentall, and Coleman, from Essex; Dray, and Turner, from London; James, of Cheltenham; Picksley, from Lancashire; and the home houses of Foord, of Lenham; Weeks of Maidstone; Garrett of Maidstone; Spencer; Aveling, and others. Coleman, of course, was declared to have the best scarifier, Bentall the best broadshare, Weeks and Picksley two good collections of implements, Dray the best set of hand-tools, and so on.

Three firms entered Howard's two-horse harrow, and, as there could be no best, the prize was divided amongst them; two sent the three-horse, and of course with a similar division. The iron plough awards were also in favour of the Messrs. Howard, whose implements were exhibited by Mr. Foord. Although the land was rather too light and friable for show work, the performance was pronounced to be very good. On the other hand, nothing could be worse than that of the Kent plough, in which some recent improvements have been effected. It really looked more as if some of the Dorkings had been turned on the land the day before, and carefully scratched it over. However, the fore-carriage of the plough has been amended, the straight beam has been nicely arched, and the draught has been considerably lightened. And all to this purpose—that never, as the men of Kent themselves admitted, was there such unsightly work. Well may the county want one good meeting, now and then, if this be a specimen of what they are doing there in the nineteenth century.

Lord Darnley, the President of the Society, clearly takes a real interest in the proceedings, and he put the different points on his list with much good sense and earnest intention. Moreover his lordship asked others to follow his example, and begged the several speakers at the dinner not to deal in empty compliment, but to speak out. Messrs. Rigden and Gillett, for the Judges, answered to the call in two admirably practical addresses, in which they found but little to compliment the meeting. In fact, it would have been impossible to have done so. Our own opinion is, that the Kent farmers themselves did not do the occasion justice. Whether their general co-operation had been duly sought, we cannot say; but until the Society can command more competition and more general interest from the county, it does not promise to make much way. We heard both on the ground and at the dinner the frequent remark that "I have a much better" mare or sheep or bull at home. As a rule, we do not attach much import to such an observation; but, in this instance, it was really quite possible; and if so, the committee, of course, should look up such entries. Competition, in short, is the very life-blood of these meetings; and we must let Mr. Rigden put this well home, as he did, in his own speech, with an anecdote in point. At the Derby Meeting of the Royal Agricultural Society he exhibited a Southdown for the first time. He sent his ram with the notion that he was a very good one; but he was "nowhere" on the day; and a friend—one of the successful exhibitors—kindly gave him this piece of advice:—"Just take your ram out of the yard, Master Rigden, tie him tightly round your neck, and then throw yourselves into the first bit of deep water you come to!" Strange to say, Master Rigden did not do so, but took his ram home again, carefully studied his defects, and in three years' time lived to beat his adviser!

Our Kent friends may profit in all sorts of ways by this story, although we don't go to the length of the deep water.

THE STEAM PLOUGH.

We have no wish to fight the battle of the steam-plough inventors; but while combatants wax hot or get sorely bruised, bystanders may sometimes profit by the struggle. It matters not, just now, whether a dignified competition for an implement prize admits of "testimonials" and lists of customers being proffered to influence the opinion of the judges; whether a judge is worth having, who condescends to form his judgment upon hearsay, or decides by other evidence than the work and machinery before him—of course taking a comprehensive view of the subject in all its bearings and applications, by means of his own knowledge of his business; or, again, whether a judge should receive after-explanations as to the cost price of apparatus, or adhere to the statements of his "catalogue" and "instructions." We reserve our opinion on these and similar points, though we believe that a discrepancy can be explained without imputing to any man unworthy motives. As we said at starting, the rivals shall assert their own claim to priority of invention—or, if they have not that, to the most successful practical working-out of a principle. As they boast of priority in steam-ploughing, however, we cannot help thinking that the Marquis of Tweeddale or Lord Willoughby de Eresby could tell them a story; that Messrs. Fisken can refer to their early experiments; that Mr. Usher does not forget his trials of the rotary cultivator; that Mr. M'Rae ploughed by steam-engine and pulley on an estate near Glasgow, in 1840; and that our great drainage friend, Mr. Josiah Parkes, had field-days with Heathcote's steam-plough on the great moss near Manchester, and also at Dumfries, more than twenty years ago.

But in Mr. Smith's letter of August 13th there are conclusions from which we greatly differ—leading the farmer, as they do, to estimate the value of a steam-cultivator from a wrong point of view. Mr. Smith represents the Chester trial as a race, in which that machine ought to win which performs with most economy, as compared with the horse-power required to produce a similar effect—the condition as to turning over the soil being of course complied with. Calculating from the judges' figures, taking the price of Mr. Fowler's plough at the larger sum, which is its actual cost, and charging equal wear and tear for both machines in question, Mr. Smith brings out the result that his machine worked more economically than Mr. Fowler's, as well as economically compared with horses' work. Then, as the judges stated that "the trials of Messrs. Howards' (Smith's) machine also prove that the soil can be inverted in an efficient manner," the logical deduction, he thinks, is that his apparatus clearly won the prize. Now, giving Mr. Smith the benefit of his own computations, and his interpretation of the judges' description of his work, there is just one point which he appears to have overlooked. One implement may be said to turn over the soil "efficiently," and another may be said to do so too; but there are *degrees of efficiency*, and we are no more bound to take the lowest tender in steam-culture than in the building of a house, where workmanship may be done to the letter, but be worth double in one case what it is in another. The terms of the offer promised a prize to the steam-cultivator that should "in the *most* efficient manner turn over the soil;" and it is just possible, therefore, that judges might prefer, as most conformable to their instructions, the work which turns over furrow-slices, burying the sward and exposing the underside of the slices upon the top, rather than that work which boasts of leaving the surface unburied, and its torn pieces not inverted, or that which turning over slices right and left covers up half the ground without moving it at all. The plough mould-board certainly does not turn the soil completely upside down, but lays it up at an angle—still it is commonly said to "invert;" and as many of the broken pieces in Mr. Smith's work are tumbled over, and a portion of the under soil brought up and exposed, perhaps the term "invert" may also be applied to describe a part of his process. But we think the judges must have taken a most favourable view of the work done by Messrs. Howard at Chester; for we certainly should never say (as they do) that, while the first operation with the three-tined implement left the surface "more or less in its original position," the crossing with the five-tined implement "reversed the whole of the top soil." Whatever "reversing" may mean, our own inspection assured us that the surface grass and rubbish were far from being buried; indeed, one of the chief merits of the work consisted in the rubbish being left at top, to die or be extracted and got off. They report that Messrs. Howard's operations exposed "a rough, irregular surface to the action of the atmosphere," and that Mr. Fowler's ploughing left the soil "in a far more desirable condition, and better adapted for all the purposes of husbandry" than horse-ploughing does. And it is clear that *for autumnal cultivation and for cleaning land* they preferred the action of the scarifying apparatus; while for *the general requirements of husbandry*, in which the plough is by far the most important and most extensively used implement, they selected the ploughing machine. And again we repeat that the mere performance of *one process* at a cheaper rate than another machine accomplishes a *different process* cannot alone entitle a machine to be considered the winner. If this principle were admitted, we might have a steam machine rolling, or drilling, or hoeing with a greater per-centage of saving over horse-work, than another machine could show in ploughing or grubbing, and so consider itself the most valuable because "most economical;" when in a more important process, as ploughing, it might work at disadvantage, compared with the other invention, or be altogether incapable.

And now let us distinguish between things that differ. You may work most economically, owing to *the excellence of your implement* or *the superior nature of the process for certain purposes*, when your mechanism for actuating the implement may be less economical than that of other inventions. Or, on the other hand, you may work *at least expense for every hundred-weight draught of your implement*, and yet the saving in your work be less than in the other; because you may be performing an operation much more wanted in general practice, though the other can be done at more profit while it lasts. Which is the more valuable apparatus of the two? Why, clearly that which can apply power most cheaply; for you have only to attach the implement of the first machine, to work with greater economy still, and beat it in its own advantageous process; while the other apparatus would work your implement, or indeed any implement whatever that is adapted for traction by rope, at a loss as compared with your performances.

Apply this consideration to the rival Chester steam tilling-machines. And here we need have nothing to do with engine-power, length of rope, number of pulleys, &c.; but simply take the expenses as estimated by the judges, and the draught and speed of the implements as deduced from their investigations. Six horses, yoked three before three, were found to pull Messrs. Howard's three-tined cultivator very well at their own pace, going the same width and depth as with the steam-power. And that the work was not at all above average pulling for the horses may be judged of from this fact: The draught of a Wilkie's swing-plough, turning a furrow 9 inches wide by 6 inches deep in this land, was 6⅜ cwt., that is, fair draught for three horses. The scarifier took about the breadth of three furrows, not cutting all this width, but tearing up the soil both to a greater breadth than the outside shares extended, and also between the shares, which are set with an interval between their tracks instead of "overlapping." The depth was 6 and sometimes 7 inches. Everybody who has worked a good scarifier knows how much less power is required to break up hard soil into pieces without turning them over, than to cut rectangular slices, and turn them with the screw-shaped, frictional incline of a mould-board. However, as we reported of the trial at the time, the six horses drew the implement without any excessive exertion of strength. Taking 2 cwt. for each horse draught, the whole draught of the implement was thus 12 cwt. The average speed, including the turnings at the end, was observed, and found to be at the rate of 3,600 yards per hour.

Now, let us get similar items of Mr. Fowler's work. In the first place, what was the draught of his plough? Had it been thought of, a couple of the plough bodies might have been removed from the frame, and a number of horses yoked before it; but, as it was, the four furrows at once were evidently beyond the pulling force of any reasonable team. The draught of a single furrow an inch narrower than each of those taken by the implement, was found (as we have said), to be 6⅜ cwt.; so that the draught due to the four furrows would appear to be some 24 cwt., or that of twelve horses. But it must be borne in mind that a comparison between an iron swing-plough and one of the ploughs in this machine cannot be on equal terms. In experiments with iron ploughs, we have found the draught of the implement along an open furrow (without doing any work), and due merely to the weight sledging on the sole, to be frequently 1½ cwt.; four ploughs thus requiring 6 cwt. to pull them "empty." We once tested the draught of Mr. Fowler's implement, running empty on the land, and found it 3 cwt.: consequently, we deduct 3 cwt. from the 24, on account of the lighter travelling of the implement compared with horse ploughs. Then, it is considered that when a number of plough-bodies are set together in a frame, less power is needed to pull them than to pull as many separate ploughs. This is seen in using the two-furrow plough with three horses, when four horses would be required for two separate ploughs. And Mr. Williams found from some trials of his ploughing-machine, that he saved one horse out of six by doing three furrows at once. We will, however, allow, say 1 cwt. more for this advantage: making altogether 20 cwt., or 10 horse draught for Mr. Fowler's implement. The average speed, including the turnings (but neither with this nor with Messrs. Howard's implement, reckoning stoppages for altering, &c.), was at the rate of 3,088 yards per hour. For the sake of comparison, the same pace must be taken in both cases; and 20 cwt., at 3,088 yards per hour, is the same thing as 17 cwt. at 3,600 yards per hour. Messrs. Howard drew 12 cwt., and Mr. Fowler 17 cwt. at the same speed: the former using an 8-horse, the latter a 10-horse engine. What then is the cost per day in each case for every cwt. draught of the implement worked? Messrs. Howard's expenses were estimated by the judges at 46s. 9d. a-day, being 3s. 10¾d. per cwt. We will take the prime cost of Mr. Fowler's machinery at £753, instead of £650, bringing the judge's estimate up to 48s. a-day: being 2s. 9¾d. per cwt. That is, *Mr. Fowler hauled more cheaply than Messrs. Howard by as much as* 28 *per cent.* To please Mr. Smith, we will now allow 20 per cent. wear and tear on Mr. Fowler's as well as on Messrs. Howard's apparatus: the daily expenses being then 51s. 9d., and the cost per cwt. 3s. 0½d., or 22 per cent. lower than Messrs. Howard's. But not choosing to take upon ourselves to impugn the judges' valuation of the relative wear and tear of the two machines, one with a short rope, large grooved-drums, and one pulley, the other with more rope, coiling-drums, and four smaller pulleys, we prefer the former statement of 28 per cent. advantage in Fowler's working.

Our calculation shows *the cost of the power applied* to any implement worked in the same way, by both sets of machinery; *the money value of the tillage done* will, of course, depend upon the effectual or imperfect use which the implement employed may make of the power conveyed to it—that is, the comparative excellence of the form of tool, or of the particular process performed by it. Whatever value was put upon Messrs. Howard's work, it is clear that, with a suitable scarifier, Mr. Fowler might have done work worth precisely as much per acre; but, applying the power more economically, he would have accomplished it at 28 per cent. less cost. And on the other hand, Messrs. Howard could have drawn a frame of ploughs, doing work like Mr. Fowler's, only it would have been at greater expense.

Now, we have no wish whatever to disparage Mr. Smith's apparatus—very far from it, indeed. It is particularly ingenious, and so valuable—from its simplicity, cheapness, portability, and several other important facilities and advantages — that many farmers are adopting it in various counties; and there is no doubt that sets of this tackle will be sold by hundreds. But we object to any claim set up for more than is its due. It certainly is to be regretted that the judges at Chester should have been carried off to the thrashing machines just when they were getting into the merits of the steam-plough trials; and more extended operations might have been conducted, with a view to ascertaining the capability of each machine in three distinct processes—the breaking up of foul land for cleaning, the preparation of lea ground or other clean land for sowing, and deep-working for winter exposure. But as far as the work was done, there is no doubt that the relative importance of these various uses of the implements, as well as the economy in working, were duly considered by the judges. And the principle of construction may also have had some influence in their adjudication, though of course a minor point compared with economy and effectiveness in actual work. Look for a moment at this matter. Mr. Smith's system of hauling implements appears to have received most of the improvements of which it was originally capable, and we do not see that the expenses of working can be much reduced. The windlass, anchors, implements, &c., are already so simple in construction, that but little reduction seems possible in the prime cost; but the labour, amounting to 16s. out of the 46s. 9d. per day, may perhaps be diminished 2s. 6d. by doing without the windlass-man—thus making the lowest cost per cwt. draught attainable by the system, say 3s. 8d. Mr. Fowler's system we regard as being open to a great diminution in the cost price—as shown by the simpler form of winding-gear attached to an engine fire-box which appeared at Chester, though only tried for a short time in the field; indeed, the principle of grooved drums connected with an engine self-shifting along the headland is susceptible of innumerable practical applications, and different manufacturers will reproduce it in various forms of machinery. We have no doubt that, with an eight-horse engine, the apparatus will be purchasable for £200 less money than the Chester trial machine, with all its appurtenances, is said to cost. The daily expenses will then be 44s., instead of 48s.; and as one man at 3s. may also be deducted from the judges' estimate of labour (excepting in difficult ground with the largest-sized plough), the cost per cwt. draught would be only 2s. 5d.; but less work being done by an eight-horse than by a ten-horse engine, we must reckon the cost at somewhat more. Invaluable as Mr. Smith's method of working undoubtedly is, and rapidly as it has attained to a thoroughly effective form of the various parts, we believe that Mr. Fowler's method (though wanting some of the handiness characteristic of Mr. Smith's) will ultimately prove superior on all surfaces except steep hills, because it applies the power with greater mechanical advantage and the lowest amount of labour.

We have calculated the expense of steam culture at so much per cwt. draught of the implement; but lest our readers should fall into any misapprehension, we must compare it for a moment with *horse labour* estimated in the same way. For taking 2 cwt. as the draught of one horse, it might be said, "Why, horses pull at only 2s. a day for each cwt. draught, reckoning the cost of a pair-team and man at 8s." But *time* and *distance* were considered in the aforesaid calculation, and must also be reckoned here for the sake of fair comparison. In ploughing one acre in an eight-hour day with a ten-inch furrow, a team travels 17,424 yards; so that the average pace, including the turnings, is 2,178 yards per hour; and 2 cwt. drawn 2,178 yards per hour is equivalent (in power expended,) to only one and one-fifth cwt. at the speed of 3,600 yards per hour, the speed at which the steam implements were compared, and at which pace horses would not work for half a day. And one and one-fifth cwt. at 4s. a day, the expense of one horse and the manual labour, is at the rate of 3s. 4d. a day for each cwt. draught. Compared with horse-power, then, Messrs. Howard's 3s. 10¾d. is a *loss* of 16 per cent., while Mr. Fowler's 2s. 9¾d. is a *saving* of 16 per cent. But the horse damages his work by his trampling, and his slow pace produces work much inferior to that of the steam plough or cultivator; so that the *valuation of the steam tillage* shows a profit as compared with horse-tillage, even when the cost of the power applied would indicate a loss. In heavy land ploughing, and in deep work, where horses pull at greater disadvantage, the gain is much greater, because the steam power is applied at a still cheaper rate. Besides, the advantage of being able to work *more* than 10 hours a day (for which time the above prices are calculated), and the consequent expedition, forms an overwhelming balance in favour of the steam power.

In concluding this long story, we congratulate the agriculturist on the success which has attended the invention and persevering improvement of steam cultivating machinery. We consider Mr. Fowler entitled to all honour and gratitude from the nation at large, as well as from the farmers, for his ceaseless efforts and inexhaustible ingenuity in grappling with the steam plough problem. And we cannot sufficiently express our admiration of the boldness and enterprise of Mr. Smith, in breaking away from the routine of immemorial practice, and successfully introducing a novel mode of culture that promises to work miracles on the clay lands of Britain, or say what satisfaction it gives us to receive the new tillage from a genuine English yeoman rather than from some amateur farmer or member of a learned profession, as has frequently been the case in agricultural innovations.

MANUFACTURE AND CONSUMPTION OF FERMENTED DRINKS.

We furnished recently some details respecting the manufacture and consumption of our great national beverages, ale and beer; and we now proceed to investigate the production, importation, and consumption of spirituous liquors; taking, at the same time, a passing glance at some other countries.

The cereals, although not exclusively, are largely drawn upon for the distillation of spirit. Not that all the alcohol distilled is used as a beverage; for it is often forgotten, in the comparative calculations of consumption, that it is extensively used for many other purposes: such as for chloroform, sal-volatile, dissolving gums and resins, extracting dyes, removing stains from silk, cleaning and polishing delicate machinery, optical instruments, silver and plated wares, in the Daguerreotype and Talbotype processes, extracting or dissolving essential oils, preserving objects of natural history, and very largely in the chemical and pharmaceutical laboratories of Europe.

The following figures show the consumption of spirits in the United Kingdom at two periods, in gallons:—

	1821.	1851.
British spirits	8,349,170	23,976,596
Foreign do.	957,340	1,903,203
Rum............	2,489,120	2,880,425
	11,795,630	28,760,224

In the first-named period the population was about 21,300,000, in 1851 it was 27,500,000. In 1851, therefore, the average consumption was a little more than one gallon; and if we carry down the return to last year, the consumption—28,866,074 gallons—would give a rather less average proportion per head of the population.

Three years ago malt was made free of duty for distilling purposes and for exportation, and spirits were allowed to be distilled free of duty to be sent abroad: hence an increased impetus has been given to the shipment of British spirits. Two years ago the shipments were merely nominal; last year they amounted to 5,190,538 gallons.

It is not necessary now to enter into the discussion of the use and abuse of fermented drinks. It matters little whether they are presented in the shape of beer, wine, or ardent spirits: the active principle in all alike is alcohol, which exists in variable proportions in each; and, to a great extent, they not only stimulate and invigorate, but they also partake of the exhilarating and soothing, hunger-stopping and waste-retarding effects attributed to tea. Fermented drinks are not only an agreeable, but often a necessary substitute for fat. Taken in moderation they not only promote digestion, but supply carbon to the system give energy to all the vital functions, relieve the lassitude of the nervous system, and call into action the intellectual powers.

All countries have some spirituous drink, of native or foreign manufacture. Whether it be the chewed kava of the Pacific islands, the chicha of South America, the pulque of Mexico, or the toddy and arrack of the East.

Some of these stimulating beverages are of curious origin. Thus, an intoxicating spirit is distilled in Corinthia and Styria from gentian, which is found in most of the elevated regions; in Tartary and Iceland we have the koumis, or fermented milk; in Dalmatia, rakia, from the husks of grapes, mixed with aromatics; in Northern Africa a brandy is made from dates, and a strong spirit from millet. The fermented fruit of the peach gives an excellent brandy, which is chiefly manufactured in the United States. An American citizen has succeeded in distilling a pleasant spirit from the tomato. In Norway, where about 2,500,000 gallons are made annually, the spirit is chiefly distilled from the potato; but a small portion is produced from rye, barley, and oats, and it is generally 50 per cent. proof. In Chili, after making cider and wine from their apples, they extract from the refuse a white and finely-flavoured spirit.

Some of these foreign beverages require a degree of hardihood to experimentalize upon them. Thus the flavour of pulque—the sap of the leaves of the maguey—(the *Agave americana*) is likened, by Dr. Bayard Taylor, to a distillation of sour milk, strongly tinctured with Cayenne pepper and hartshorn. Another traveller tells us that "to strangers, both the taste and smell are horrible, something of the style of rotten eggs; but one soon gets accustomed to the flavour." And this is the alcoholic drink of five millions of people. What proportion it is indulged in by them we have no means of determining.

It would certainly be very beneficial, in many points of view, if we could obtain our alcohol from other sources than food plants; and, as scientific discovery proceeds, there is little doubt that we shall in course of time utilize for this purpose many now neglected or wild plants. The French chemists have been long at work on this experimental research. Owing to the dearness of alcohol, a great number of continental beet-root sugar manufacturers transformed their establishments into distilleries; but the alcohol obtained from the root was of such detestable taste and smell, as to be unfit for any purpose whatever, until, after some time, it was found that the essential oil could be separated from it, and the spirit rendered equal to the alcohol from colonial sugar and from grapes. The attempts to distil from beet-root in this country have not yet been very successful.

In Algeria attention has been called to the cheap production of alcohol from indigenous plants, obtained in great abundance in that province. The bulbs of Asphodel, in the months of May to August, yield as much as 12 per cent. of the fermentable principles—about the maximum of cane sugar, and almost double that of beet sugar. The marc or pulp, after the extraction of alcohol, is also greedily devoured by hogs, who feed on it with advantage. The large and dry bulbs of *Scilla maritima*, another common plant, growing abundantly in northern Africa, afford, according to M. Dumas, more than 30 per cent. of saccharine matter; but this contains a bitter principle, which is injurious to the alcohol, although it can probably be removed like that in beet-root spirit. The French are even utilizing their pea-shucks: they have discovered, so it is said, that pea-pods yield alcohol as abundantly as the beet-root, or as pumpkins.

There has been a great decrease in our imports of Geneva or Hollands. About ten years ago we imported on the average 400,000 gallons a-year: now it has declined to 178,000 gallons. The chief export is now to the United States, where this spirit has become highly popular under the name of "Schiedam Schnapps." The greater part of the gin shipped from Holland to the United States is imported high-flavoured for adulteration—to be mixed with what is called in America "pure spirits"; that is, common whisky obtained from maize, with the essential oil extracted, leaving it neutral. When brought into contact with an article bearing a high flavour, pure spirits therefore imbibe the flavour; and in this way, in fact, are the wines, gins, and brandies adulterated in the New York market. The gin principally shipped to the States has an extra quantity of the juniper flavour, and, when added to the "pure spirits," it produces the article commonly known as "Old Hollands," and by other names. The manner of producing this extra flavour is somewhat after the following fashion: The juniper berry is mixed with the malt-wine of the Dutch—a liquor having a malt flavour, due to the mixture of corn and rye in its manufacture. The juniper and the malt-wine are put together in the mill, and concentrated. A few gallons of the extract will give a pipe of whisky the flavour of gin.

From the last census we glean the following facts relative to the quantity of grain distilled per annum in the United States:—

Indian corn	11,067,661	bushels.
Rye	3,143,927	,,
Oats	56,717	,,
Hhds. of molasses..	61,675	

From these products are manufactured annually 42,133,955 gallons of whisky, and 6,500,000 gallons of rum. There are also imported about 4,000,000 gallons of brandy, grain, and other foreign spirits. A late Cincinnati journal informs us that in that city and its vicinity there are thirty-two distilleries, which manufacture and send into the market in a year 19,260,045 gallons of proof whisky, in the manufacture of which there were consumed 6,420,015 bushels of Indian corn, besides a large quantity of rye and "ship stuff." What this "ship stuff" is, is not stated: it may probably be the molasses or drainings from sugar casks. The average annual export of maize from the United States to Europe for the last nine years has been about

5,274,585 bushels; so that the quantity of this grain consumed in the manufacture of the distilled spirits sold in Cincinnati was 1,145,430 bushels greater than the average annual shipment to Europe.

The consumption of spirituous liquors is perhaps larger than it ought to be in many localities, such as Scotland, Australia, California, Poland, &c.; but we believe this evil will in due time work its own cure. As active employment, education, and amusements progress, men will resort less to the bottle as a stimulant; and, as in the United Kingdom, the ratio of consumption will decline.

LECTURE ON GEOLOGY,

WITH ILLUSTRATIONS OF THE PRACTICAL APPLICATION OF THAT SCIENCE TO AGRICULTURE.

Delivered at the Agricultural College, Kennington, by S. J. Mackie, F.G.S., F.S.A., &c.; and printed at the desire of the Principal, J. C. Nesbit, Esq., F.G.S., F.C.S.

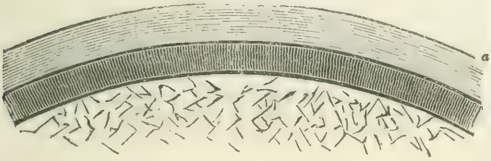
Science not now to be disregarded in any department of industry. Relics and organic remains. Doctrines of central heat and gradual refrigeration of our planet. Elevation of land. Age of mountains. Spheroidal form of globe. Strata and sea-shores. Fossil and recent shells. Deposits—freshwater, terrestrial, and marine. Inclined and vertical strata. Speculative, theoretical, and practical geology. Explanation of ordinary technical terms proposed. Practical utility of geology.

Every department of industry or commerce, in England at least, has been developed into a science, and scarcely any available sources of information or improvement have been neglected in advancing the progress of those arts and manufactures which have placed our country in the foremost rank of nations, and have made our merchants and our manufacturers like the princes of old.

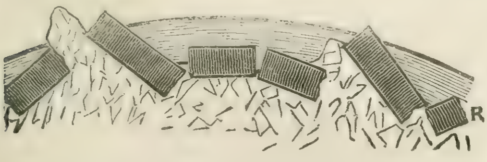
Most of us can recollect the former school of antiquaries—harmless old gentlemen, who collected all kinds of oddities, and carefully treasured them as curiosities; men who would take to the fraction of an inch the width of a church window or the height of a doorway; who would count every nail in an old shoe, and exhibit with delight a spur of King James's, or a bit of Oliver Cromwell's coat tail; but who never learned one fact from all the treasures they accumulated, nor advanced by a single new idea the intelligence of their race. And yet out of the things that to these men were mere idle vanities, the skilfulness of modern induction has developed such interesting knowledge, and from the graves, edifices, and relics of the ancient nations of the world, has furnished such valuable lessons of history, as have made archæology one of the most interesting and attractive of the modern sciences.

But antiquities are associated with the feelings and passions of the human race; they retain the traces of those who have gone before us the way of all flesh; there is a touch of something as it were almost of humanity about them. The brooch of the Anglo-Saxon, or the fibula of the Roman, speaks, after no matter how many ages, to the mind like the trinkets of some departed friend; and though we knew not the wearers, yet we link intuitively as it were, in their contemplation, many of the best sympathies of our nature. Relics always were the treasured mementos of the past. Not so the curiosities of the soil: shells were broken out of the rocks centuries ago, when the mighty pyramids were reared; and the mineralized teeth of fishes in more recent times have been regarded with superstition or swallowed as medicines. There is no association, at first sight, between the relics of former creations and the sympathies or wants of our race. Iron and the metals were required in peace and in war, and of their working and their manufacture we obtain evidences from very early periods. Stone for building also succeeded with the advances of national civilization. But geology, though in some branches practically existent within certain bounds, had not attained the rank of a science at the dawn of the present memorable century. Earnest and truth-seeking indeed have been those master-minds whose labours have developed this yet imperfect, but marvellous and noble science. From the shells and bones, and scales and leaves, mineralized in the solid stone, they have pourtrayed the creations of the past; from the clays, and sands, and limestones, they have read grand passages in the history of former continents, and have mapped down seas and oceans that laved the shores of lands no monarch owned, or human being trod; from the granites, traps, and basalts, they have told the ages of mountains, and have gained an insight into the mysterious powers of the volcano and earthquake, and they have given an interest of no ordinary character to the ages that were, and out of seeming insignificance and chaos have developed scenes of exquisite beauty and order. No wonder that the fossil relics of ante-human creations should be so eagerly sought after by so many of the votaries of this attractive study. Doubtless they are the finer types, in which the poetry of the science is printed; but there is creeping into the fashion of collecting fossils rather too much of the spirit of the old antiquaries, and specimens are too often regarded in the light of something new or rare, something that nobody else has—in fact, as curiosities, rather than as something every one is sure to find if they look—as something useful and instructive—something that is an evidence of what was, and may be of service to what is.

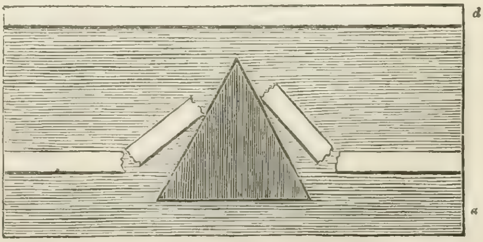
There are still numbers, notwithstanding the progress geology has made, who are ignorant of its first principles; and the question is often asked, by those even who have some slight acquaintance with its rudiments, Of what good is it? We have still much to do in promoting the knowledge of its principles, and what is still more to the purpose, their practical application. The anomalous and somewhat equivocal position which this science is through prejudice made to hold, among professional men as well as among the mass, in this respect, has undoubtedly been induced by the too-absorbing attention given to the study of organic remains; and indeed a great proportion of so-called geologists would be with more propriety called amateur palæontologists. We do not, however, condemn palæontology, while we hold distinctly and prominently that its true position is subsidiary to true geology, and even to the study of the rocks themselves. Another point we would remark upon here, as tending to divert popular favour and a due estimation of the merits of this noble science, is the want of a proper and sufficient distinction being ordinarily drawn between the speculative, theoretical, and practical departments into which this science is certainly divided. Some of its doctrines are most entirely speculative; and when any of these are overturned in the popular faith—as assuredly they will be, with the progress of information—they will be so many reverses and drawbacks to its progress. For instance, it is common to hear of the incandescent state of the interior of the globe. This doctrine is purely *speculative*, but it is not usually set prominently forth as such. It is the more frequently received as one of the established deductions of geology, and we even find writers of eminence placing this speculation in a very decided manner before their readers. It had its origin chiefly in the fact that in descending into mines, or deep into the earth, an increase of temperature takes place, on the average, equal to one degree of heat for about forty-four feet of depth; that the shape of the globe itself, that of an oblate spheroid, having its equatorial diameter greater than its polar diameter by about seventy miles, was indicative of an original fluid state; that on the supposed principle of the condensation of the stellar nebulæ in the heavens, this globe had originally been likewise condensed from a vaporous condition, by which process great heat had been generated; that granite and other similar rocks exhibited the traces of igneous action; and that from the lines and evident directions in which volcanic action takes place, it was to be concluded there was an internal sea of molten matter with which they were all connected. The refrigeration of this liquid sphere was supposed to have given rise to a thin consolidated crust, which fell in at intervals, and had its fractured portions upturned, as the mass beneath contracted in cooling; that as soon as this film or series of films was sufficiently reduced in temperature to form a protecting crust, the vapour of the atmosphere condensed upon it into seas and oceans, and the deposition of stratified rocks began. The hardened and often crystalline character of the earliest deposits were thought to be the effect of contact with the heated crust of the globe; and the elevations of mountain ranges at subsequent epochs, the depressions and upheavals of lands, and their various associated phenomena, were (and even still are by many) imagined to be produced by the continued cooling down of the central portion, and the consequent tilting inwards and upwards of gigantic fragments of the broken and fissured shell. Now very ordinary reflection will soon shew us how purely gratuitous is such a doctrine. That there is an internal heat produced by some cause no one will deny; that great and wonderful powers have been at work changing the structure of rocks, upheaving, rending, and depressing them, is equally evident; but in all this there is nothing to prove that the interior of this globe is now in a state of such terrific incandescence, and possessing such accumulated intensity of heat as indicated by the calculation of one degree of increase for every forty-four feet of vertical depth. At this rate the boiling point of water would be reached at two miles, the melting point of iron at twenty-four. Now the heat that would melt iron would reduce nearly every known material to the fluid state; and in the ratio indicated, the intensity at the centre would be equal, as has been calculated, to 450,000 degrees of Fahrenheit. What schoolboy that has cast leaden bullets but knows perfectly well, no increase of temperature beyond the melting point will take place in the contents of his iron ladle while a single fragment of the solid metal remains. Every one knows too, that if we attempt to melt ice over the fiercest fire, the temperature of the water never rises above freezing point (32°) as long as a single particle of the solid ice remains. Now, as iron melts at about 2,786° Fah., it follows that the temperature of this globe must be reduced to that point at least before any superficial consolidation could take place. On the opposite hand, it would also be inferred from the same premises that if the incandescence had reached the point submitted, the intensity of heat would be sufficient to instantly reduce the thin crust of the globe, and to drive off, with explosive violence, the waters of the oceans and seas. Again, if we placed the end of a bar of iron, or any conducting substance, in a fire, we should find the heat increasing, with a decrease of distance, as we approached the fire; but in testing the temperature at great depths, it has not been found that the deeper the depth the shorter the distance which produces the additional degree of heat; on the contrary, it has been found, in some instances, that the periods of space are even more lengthened as we recede from the surface. By this doctrine, too, the granites and crystalline rocks of every region should be all of one age; but it is well known, and may readily be perceived, that they are of very various dates. If we broke through the ice on a pond with a large wedge from beneath, which we allowed to remain between the upturned edges, and if against or upon these elevated portions of ice a



[Lign. 1.—Ideal section, illustrative of the primitive structure of the globe, showing the presumed consolidated crust (*b*), the central-heated fluid mass (*a*), and the outer ocean-covering of condensed water (*c*).]



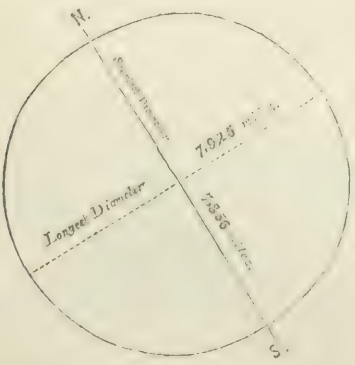
Lign. 2.—Ideal diagram, showing the supposed fracturing of the primitive crust or primeval rock (R), in the progress of solidification by the unequal contraction or expansion of the great central fluid mass.]



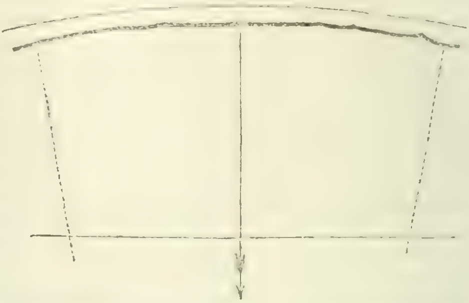
[Lign. 3.—Ideal diagram, illustrative of the upheaval of mountains, their geological ages, and the protrusion of their central granitic masses. (*a*) Vertical section of a pond of water; (*b*) crust of ice broken through by a wedge from below, with the disrupted parts elevated on each side; (*c*) additional height of water subsequently added; (*d*) new crust of ice.]

new and horizontal layer of ice was formed, we should at least be able to say with certainty that the time at which the wedge was protruded was subsequent to the formation of the first coating of ice, and previous to the second. This is the simple reasoning applied to the age of mountains. For instance, in the Pyrenees the chalk is seen disposed at a steep angle on either side of these mountains, broken through like the upturned pieces of ice by a wedge of granite, while the tertiary strata are nearly horizontally disposed upon and against the nearly vertical chalk, showing the latter, like the second layer of ice, to have been more recently formed. Thus the age of the Pyrenees must be between that of the upheaved chalk beds and the more level tertiaries; and by similar facts and inductions other ranges may be proved, of various ages, from the Cambrian and Silurian periods upwards.

It has always seemed to me that the assumption of an incandescent liquid mass, produced by condensation of vaporous matter, is as purely gratuitous as the theory of the condensation of the nebulæ themselves, which modern astronomical instruments have shown to consist of myriads of solid worlds clustered in various forms, presenting by the collective transmission of their rays the appearance of a luminous cloud; and that even if condensation had taken place, it did not follow as a necessary sequence that the liquid substance produced should be of a high temperature. In the most familiar illustration of sudden condensation, that of the production of water by the explosive combination of two gases—oxygen and hydrogen—I am not aware that the water produced has a temperature equal to the boiling point at the moment of production, or that its temperature is raised considerably above that of the atmosphere; the heat in this case is evolved in the production, not retained in the substance produced. The component gases too may previously have been of low temperatures, while the gradual refrigeration of the elements of our planet would present the assumption that in the primary vaporous state there must have been a still greater degree of heat than is now either presumed possibly to exist, or than was present at the epoch of the first reduction to liquidity; or the sudden condensation would indicate the application of a third power, such as the flame or spark, to the two gases of water. On the other hand, it might be argued that water is only the oxide of hydrogen, and that as nearly all the great masses of mineral substances of ordinary occurrence are oxides of elementary bases, there is in them all an evidence of a former gaseous condition. The spheroidal form of the globe would arise equally from the natural action of the water on its surface in trending towards the equatorial region, as from general liquidity of its substance; and if, even by some perversity, Nature had developed it after a spindle-shaped fashion, the constant action of the atmosphere, of rivers, and of currents, during the lapse of vast ages, would ultimately have reduced it, by wearing down the land of the poles, and depositing the materials in the deeper waters of the median area, to that spheroid of rest which it now presents.

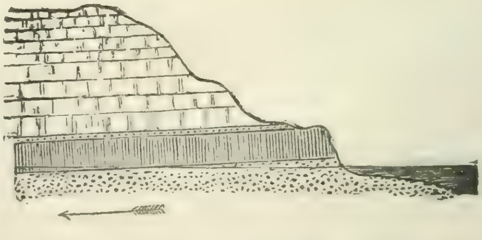


[LIGN. 4.—Oblate spheroidal form of our globe.]

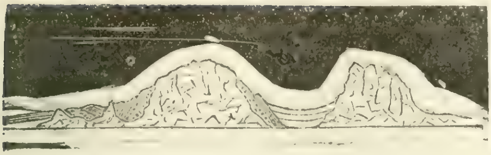


[LIGN. 5.—Comparative thickness of the crust of the earth, the geological conditions of which are known. Height of atmosphere.]

Without pursuing this subject any farther, we may see how purely speculative is this portion of geology; and how easy it is, when we quit the examination of recent and present actions and their application to the past condition of our world, to get into a sea of doubts and difficulties, and to end in bewilderment and dismay. How different is the case when we regard any of these phenomena of which we have the key in those which are taking place around us! Let us take, for instance, the case of chalk, or any other ordinary limestone, with its associated beds of clay and sand. We find these representing in their mineral conditions the dried mud and silt and sands of our shores; we find, further, both sets contain the shells of the molluscs which have burrowed into and lived in them; and that both are *stratified*, that is, that they consist of layers of matter deposited one over the other, as we see film after film of mud, or sand, daily and successively deposited by the ocean on our coasts. We find that the shells, imbedded in the ancient rocks, are comparable to recent fresh-water or marine forms, and that they are associated with fish, plants, algæ, or other organisms, which add to the evidence whether the rocks under examination were the produce of the sea or lake. We find, moreover, that these beds of limestone, clays, and sandstone, as they are presented to us at the surface of our earth, are not always horizontal nor parallel; that more commonly each *dips* in some particular direction, and that their inclination is often at a much more considerable angle



[LIGN. 6.—Illustration of stratified rocks. Cretaceous strata at Folkestone, Kent, dipping 7° E.N.E.]



[LIGN. 7.—Section of disturbed strata by intrusions of volcanic trap-rock in Radnorshire.]

than that at which they could have possibly been deposited on the shore. We further find that, as in the cases of mountain ranges, such as those to which we have already alluded, the beds are frequently inclined at a very steep angle, and even, it may be, nearly vertical, by the protrusion of a peak or mass, of a mineral character very different from any presented by the rocks which have been ruptured or disturbed. The protruded masses are usually considered to be the productions of those volcanic or igneous powers seated deep in the earth, to which are attributed the various elevations and depressions which the superficial stratified crust of the globe has undergone. In arguing upon such facts, and drawing the natural inferences, that there are two classes of rocks, aqueous and igneous—that the hills and mountains and plains have been subjected to various changes of levels—and in following out all the phases of concomitant events incident to such changes, and of which we possess or obtain any foundation in actual facts, we are illustrating the kind of investigations which I include under the head of Theoretical Geology. Under the broadest acceptation of this term I include also those established or proven conclusions which constitute the principles of the science, and may be regarded as geology proper. By Practical Geology I mean the actual applications of the science to the wants and services of mankind. Economic Geology is synonymous with the term "practical" only to a limited extent, because under that head I shall include many things which would not fall correctly within the meaning of the word "economic;" as, for example, the methods of investigating or observing the properties or conditions of mineral matter, or of actual phenomena, the determination of the dip or strike of a bed of earth, the construction of maps and sections, and similar operations—all of real and practical utility.

Books are not written so much for the learned as for the ignorant; a man does not require to read that which he knows, although he may be benefited by being reminded occasionally of some of those facts with which he may once have been familiar; and while we may have great attainments and knowledge in one or more special departments, we may be ignorant of some—nay, even many—others. It is not so much to those who *have* applied the science of geology, as to those who *have not* applied it, that the remarks and discussions we are contemplating should be addressed; and therefore a short but lucid explanation of some of the technical terms, and of the more important of the accepted principles of geology, although such may be found in most of the popular treatises on this science, will neither be out of place here nor useless; but that, on the contrary, we can not only place before the reader who may be interested in these pages, without the trouble of reference, the necessary information he may require for the comprehension of the subject, but we can also, at the same time, illustrate the practical application of many matters which may be great in their results and benefits, although simple in themselves. I do not wish to explain terms or principles so much in the way of a treatise or a dictionary, as to put them, as it were, into practice; to take them incidentally in our progress, and to treat only of those which are connected with our subject.

In viewing the great masses of mineral substances, as they are presented to us at the surface of the globe, we perceive the most important, and by far the largest proportion of them, to consist of various compounds of three familiar bases—lime (calcium), clay (alumina), and flint (silex)—and that in volume the members of the two latter groups each exceed that of the first; in point of fact, that the sands (including the sandstones, which are only consolidated sands) and the clays are more numerous and of greater aggregate thickness and extent than the limestones. At first sight the granitic and basaltic rocks would seem from their texture to offer other materials as bases, but analyses have proved that alumina and silex enter largely into their composition; and the three divisions indicated will really include the great bulk of the mineral substances of which at least the exterior portion of the globe consists. No one can dispute for a moment that the study of the formation of these substances, their qualities and uses, their position, dimensions, localities, their absorptive and retentive properties, and the various other circumstances connected with them, falls not only within the proper range of geological inquiry, but that it cannot be pursued without eliciting numerous facts of great practical utility and application. To the architect and engineer the results so obtained are invaluable, and their utility so palpably evident that no professional man of any note is now without some knowledge of geology. Such investigations, it is evident, must convey much and important knowledge of the qualities of building stones, of clays for bricks, of the action of springs, the supply of water, and a variety of other matters of a practical nature; but the connection between agriculture and geology seems to have been very much overlooked, or greatly neglected, and while modern farmers have more or less appealed to the chemist, they have not so generally consulted the geologist. To show the practical application then of this science to agriculture is, as I have said before, the object of these papers.

In our next lecture we will take a brief view of geology in its grand results and principles, and of the varied phenomena by which the most important features in the structure of the exterior portion of our globe have been produced.

THE HIGHLAND AND AGRICULTURAL SOCIETY OF SCOTLAND.

MEETING AT ABERDEEN.

"How comes it," asks the general visitor, "that the Meeting of the Highland Society is this year a month later than usual?" "How is it," comments the more caustic critic, "that by some especial arrangement the Show is this season celebrated just in the very height of the Northern harvest!" Any injudicious collision, as heretofore, with the fixtures of other Societies, might be something of an answer. For instance, by avoiding the customary clash with Yorkshire, the Scotch Exhibition has been materially strengthened by the entries of cattle, sheep, and pigs, which under other circumstances would not have been here. This, however, is not *the* reason. The postponement was made in deference to and under a kind of half-promise that the Prince Consort would be present. It was assumed that Her Majesty would be at Balmoral at the time of the Meeting, and hence the desire to give his Royal Highness the opportunity of attending a gathering so congenial to his own tastes, and in the support of such as he has so often taken a part. But the Fates have willed it otherwise. The Royal Family have not yet arrived in Scotland, and the Duke of Atholl and Mr. Hall Maxwell have to answer for the consequences.

With all respect, it was the Prince's loss. The meeting was quite worthy of the countenance of Royalty, for it was the best the Society has ever yet celebrated. Either for the general character of the stock, or the marked improvement in the exhibition of implements, there has been none, so far, equal to this anniversary. The chief features of such a show—peculiar as they in some degree are—were altogether more attractive than usual; while there was but little in other ways to counterbalance this superiority. Moreover, they were not thus centred in vain. Despite the absence of the Prince, notwithstanding the bustle of the harvest, and the manifest uncertainty of the weather, we rarely remember so full a meeting of the Highland Society; and we never yet saw in Scotland such a continuous crowd of people who took an active interest in the proceedings. They not merely thronged round Mr. Wetherell's bull, and Mr. Douglas's heifers; they discussed not only the merits of the black cattle and the white pigs, but they "went in" far more earnestly than they ever have done at the Implements. They worked carefully through Richmond and Chandler's excellent stand, gradually warming to its uses, and finishing with plenty of orders for chaff and turnip-cutters. Then, the improved steam engine is just coming to be appreciated, and Robey, who entered manfully for the prize, and took it, had to encounter the negative comparison of such famous firms as those of Hornsby, and Clayton and Shuttleworth. The machinery of the two latter were conspicuously announced as "for exhibition and not for competition;" although with the approved want of consistency, every implement was decked out with the prize-cards of the triumphs achieved at other shows. An obvious question that arises here is—if so deservedly celebrated a house as that of Richmond and Chandler does enter for trial, why should not Hornsby, Clayton and Shuttleworth, and the Howards? The Bedford makers had a collection of their essentially farmers' implements—the very things in construction, use, and price to lead on a comparatively new country. Then, they do go to work, but on the strict understanding that no official decree is to be pronounced on their performances. When, as with the Bedford plough, the instrument is really a good one, such a course of conduct cuts both ways. Argue as we will, the public will fly to the prize entries, although they may learn hereafter, as it was written in an Aberdeen journal, that "Messrs. Howard's plough wrought beautifully indeed. In look there was no work in the field to be compared with it." This, of course, comes a day after the fair; and for either buyer or seller, such a line of proceeding is at best but unsatisfactory. Another example here may the better illustrate this. If the Scotch have had a lead in any kind of farm implements, it has been with the reaping machines. Of course there was a prize for them at this meeting. Lord Kinnaird entered two, now well known as of his lordship's adoption, but considerably improved; two of Bell's, also further perfected, went to trial; and Samuelson, of Banbury, introduced another American invention, the great aim of which was to deliver the corn in the sheaf. This was more or less a failure; but both Lord Kinnaird's and the Bell machines were considered to have very much advanced in the execution of their work. Fortunately one of Burgess and Key's prize reapers was on the ground; but, provokingly enough, it was "not for competition," and accordingly any test on "authority" of our progress was denied us. Still Messrs. Hornsby allowed the English reaper at length to be set going; and it is only justice to say that the common opinion was not in its favour. It was thought that, under any circumstances, had not Lord Kinnaird received the premium, one of Bell's machines must have taken it. But the ups and downs of a prize reaper are now proverbial.

Altogether, we are still inclined to rank this exhibition of implements as something more than encouraging. It proves that the Scotch farmer is becoming awake to the weak place in his practice. A few years since it was only extraordinary how there could be so much good farming with such bad tools. It would be affectation to question but that this better state of things is mainly attributable to the presence of the English firms. To secure their aid, they have only to be better treated. With now some years' experience of the system, we are convinced that nothing can be worse or more inconvenient for either visitor or exhibitor than the Highland Society's plan of laying out this section of its show-yard. Compare one class of implement side by side with another of the same description at the time of trial if you please; but on the great show days let each house have its manufactures under its own direction. We are quite certain that the ordering out of a line of ploughs here, and of harrows there—scattering, in a word a man's shop all over the field—has spoilt many a sale; and, be it remembered, it is quite as much to the advantage of Scotland to buy as it is for England to sell. Beyond which, the exhibitors want better accommodation. They should be allowed the opportunity of covering-in their stock, for which we are assured they are ready and anxious to pay. It quite threatened for a rainy day on Thursday; and had it so turned out, either for cattle or implements, the meeting would have been a hopeless failure. In short, for a national society of the strength and importance this is now becoming, the getting-up of the show-ground is wofully inadequate and inferior. With increased accommodation, the time of the exhibition might be extended, so that the outlay would promise in every way to reimburse itself. As it is, there is actually only one day's show, and that does not open until eleven, while it closes by sound of trumpet at four. Whatever risks "the trade" may encounter, the breeders of stock do not care to leave their animals thus unprotected for more than a day—a space of time altogether unequal to the many merits of the meeting. This was a common complaint on Thursday last. Writing at so late a period, and at such a distance off, we must let the prize lists tell their own story. But we may add that one of Fowler's steam ploughs was at work in the earlier part of the week; and we must give a word in justice to the manifest improvement in the manufacture of the home-made machinery: the ploughs especially have been successfully experimented upon; and good as was Mr. Gray's performance last week in Ireland, another Scotchman—Mr. Taylor, of Huntley—surpassed him here.

The man who did make up his mind to see all that was to be seen for his half-crown, had quite enough to do. To go up and down every line, to examine some thousand entries of stock, some hundred of poultry, and we will not say how many of implements, was quite a Capt. Barclay performance for the five hours allowed to do it in. More provoking still, it was really quite necessary. There was scarcely a class that could be passed over, while some would well bear dwelling on. Take horses, Shorthorns, or polled cattle, and there was a continual succession of excellence. Luckily, there were many amongst these already known to us and our readers. The first prize Shorthorn bull, for one, was the white bull of Mr. Wetherell's, deservedly commended at Chester, the prize bull at Grantham, and so on. He is an animal of extraordinary good symmetry, and with a little more quality, and not quite so sharp in the hair, would be really a first-class beast. As it was, in a remarkably good entry of aged bulls the judges considered him to have at once placed himself. Lord Kinnaird was second with a bigger and better-coloured one of Mr. Douglas's breeding; and the first prize from Londonderry, the property of Mr. Todd, was third. Of the twenty animals shown in this class, there were many very good ones; but the two-year-olds were comparatively a poor lot, and the yearlings not a great deal better. In the show of Cows and Heifers, Mr. Douglas went far to make it all it was, and of course with some old and established favourites. Ringlet was once again the best cow, and Queen of Trumps and Venus de Medici for the third and fourth time this year the two best heifers. The preference was still for the roan, although it is only right to say one of the judges was all for her companion, who, as Venus should have, has a beautiful bosom, and fine turn of the arm and shoulder. The Queen, however, has now taken the three national honours of her year, having been placed first at Chester, Londonderry, and Aberdeen. She is of Mr. Douglas's own breeding; but Venus was bought, after having been beaten last year, of Mr. Booth, for 300 guineas; and when defeated again at Chester, her former owner offered 450 gs. to get her back—no bad compliment from such a quarter to Mr. Douglas's judgment and management. In the yearling heifers the Athelstaneford herd was yet more pre-eminent—first, second, and third; the best of these was also the best at Londonderry, and the other two first and second at the Glasgow Show of this summer. Mr. Wetherell's Chester cow was second, and Mr. Todd's Londonderry third in the aged class; but perhaps the "next best" amongst the cows was Mr. Gulland's third prize two-year-old, a beautiful roan heifer with all the fine points of a Shorthorn. It was only the super-excellence of the company that kept her from higher honours. Curiously enough, there is located in the immediate neighbourhood of Aberdeen the very largest herd of Shorthorns we know of—that of Mr. Cruikshank, of Sittyton; but this could get no further than a commendation. There were, however, not many entered from it, and their owner has, it is said, rather a dread of the necessary "preparation" of a prize animal. Another renowned Scotch breeder, Mr. Stirling, so successful with John o'Groat, had nothing in "the Links." But it was a grand show of the sort, nevertheless.

Co-equal was the display of the black polled cattle. But this might have been expected. Galloway, Angus, or whatever he may be elsewhere, nowhere is this beast so carefully cultivated as in Aberdeenshire. It is here that famous first cross between the Shorthorn and the native breed is generally carried out. In no district, perhaps, are there so many good butchers' beasts reared; and this, we believe, is the manner in which they are obtained. There are, of course, some very famous breeders of polled cattle; pre-eminent amongst whom stands Mr. M'Combie, of Tillyfour. The recent meeting went only the more to confirm his position. If he did not take all the prizes himself, he bred most of the animals that did. Still the two best bulls he had in the yard were from Mr. Bowie, of Arbroath. One, the first prize beast in Paris and at Inverness, could only be shown here in competition for a gold medal, the offer of which was the great joke of the meeting. It seems that when this polled stock was in Paris, their appearance forcibly struck M. Dutrône, the Secretary of the French Society for the Prevention of Cruelty to Animals. This gentleman could not sufficiently admire the wisdom of Providence in giving us bulls without horns—sweet, placable creatures, that could neither injure us nor one another! And so, to shew his appreciation of this, and to encourage the extension of the sort, he gives his medal for the most inoffensive of all this harmless race. Mr. M'Combie wins it with a determined-looking, hard-headed fellow, that would threaten to make a sad "butt" of a man if he did not stand clear. There are few more useful, well-shaped, or, as it is said, better-grained beasts than these Aberdeenshire cattle; but we doubt altogether their especial amiability. On the contrary, the bulls have rather a fighting look, with just the sort of head, horn or no horn, some of our old masters would have copied into their classic tourneys. However, Monsieur Dutrône, with his further experience, is going to write a book about them, as he assured Sir John Forbes at the dinner, with an embrace and an attitude — and as Sir John in due course interpreted to the company, minus only that eloquence of action which so distinguished his original. In sober truth, our enthusiastic visitor could not have come to a better place to study the polled cattle. It was altogether the finest collection of them the Society has ever commanded. Another local breeder of established reputation, Mr. Walker, could make no head way on this occasion, but he has very recently been selling off some of his herd. Judging by this, the polled make nothing like high averages for breeding, and sixty guineas for a cow was something quite extraordinary. It is the cross that turns over the money, and there were some striking illustrations in the show of what this may come to.

Neither the Highlanders nor the Ayrshire mustered in great force. It was rather out of their way. The former, however, was a very commendable class. The judges spoke especially to the excellence of Lord Breadalbane's aged bull and cow, and more still to the merits of Mr. Shaw's heifer. Indeed, for kindliness of look and quality there have been few better than these specimens of another native breed. "And whatever you do," said Mr. Torr, at the dinner, "don't neglect the native breeds of Scotland. Depend upon it, the nation does not possess more valuable animals than these native breeds." We fancy he was speaking here to the merits of the polled beasts; but the Highlanders are, in their way and for their purpose, as worthy of proper cultivation. Mr. Stewart did much of his own strength to make up the show of Ayrshires; and in the bull classes had little or no competition.

Whatever we may think or say just now of the Leicester sheep at home, they quite sustain their repute in more distant regions. The feature of the sheep-show in Ireland the other day was the Leicester class; and it was the same here. In a very good entry of some of the native varieties—the Cheviots and black-faces—the Leicesters had still a clear pre-eminence. But it must be recorded as the best exhibition of the breed Scotland has ever yet seen. The farmers of the country are uniting more size with their quality; while such men as Mr. Collie, of Ardgay, have flocks tracing back to our own famous strains. Beginning in the right way, they have now full proof that such a sheep will "do" here. They can even compete, as the prize list will show, very successfully with our English breeders; indeed, to show the strength of the class, we may mention that Mr. Wiley's second prize shearlings at Chester could get no higher rank at Aberdeen. They were fairly beaten by the Duke of Richmond, who, changing his colours with his country, shines far more in the North with the long wools than the Southdowns. His Grace's lot of the latter were very uneven, his ewes especially, anything but matched. There were far better sheep against him, and the entry was altogether a very creditable one. Not that we can write the Southdown as making much progress with our friends over the Border. As far as the show of them went, it was in the hands of two or three exhibitors. The Cotswolds, again, are not in force. In fact, there are two very awkward native breeds to oppose in this department—the hardy, active, black-faced mountaineers, and the lengthy, meaty Cheviots from the other quarter. The South Country Cheviots were wonderfully good, and for general excellence ranked indisputably only second to the Leicesters.

Beyond a stray thorough-bred stallion or two of no great merit, a clever pony, and a few roadsters, the show of horses was confined as usual to those for Agricultural purposes. And they do show a horse in Scotland. It is not merely the judges who see him out, and know how he can go. There is not a man who, if you ask, but will have his horse round in a moment, and away with him. It is really a treat, and one altogether peculiar to the country, to see half-a-dozen or so of these grand Clyde draught horses trotting as light and as pleasant as ponies. Some of them have quite grand action. There was a bay white-legged horse of Mr. McRobbie's which went with all the style of a London dealer's brougham horse, and at the same time as strong and as stout as steel. None but the Clydesdales can do this; at least, so we thought until we found this very nag, the best goer of them all, was by an English "Shire" horse. Further inquiry but further established this. The cross of the Clydesdale mares with a Northamptonshire or Lincoln stallion is day-by-day becoming more common. There was one aged horse from Towcester in the yard; and there are many more, we hear, in use. Moreover, there is no doubt but this new blood tells. The active good-looking character of the native breed is still preserved, while something more is made of it. To the intense delight of a couple of Suffolk men, a chesnut was also discovered along the line of rails where the stallions stood, and which they at once recognised to be "a Crisp." A very handsome horse he is, too, with the fine quarter, or, to use a funny word for such a purpose, "the quality" of a hunter. He has been serving in Scotland for four seasons, and, standing side-by-side by them, showed to no disadvantage with the majority. But more than this, he was quite as clever when we ventured to have him out—he could walk away as freely, he could trot as gaily, and show himself altogether as handsomely as the bays and browns. In plain truth, the judges made a mistake in passing him over.

We must regard this more as a mixed lot than as one of pure Clydesdales, although on any consideration it could not come quite up to the display at Glasgow last year. But this was only natural. Still the range of stallions was in both old and young horses most commendable, and altogether superior to the mares, the pick of which were clearly the two prize animals—lengthy, roomy, and lively, with not that great "feathering" of the leg some of the legitimists insist on. Two Mr. Wilsons were conspicuous in the entry, the one of Leven taking the first prize with a particularly good coloured brown horse, and the other, of Portsoy, being remarkable for the use he is making of English blood.

Many of the foals were very large and promising, but some of the two-year-olds not so good-looking, and we confess there was an award or two we could not quite understand; and the public have here, if they so please, nearly as good an opportunity of forming an opinion as the judges themselves.

The show of pigs was not large, and a local exhibiter, Mr. Skinner, of Aberdeen, had quite the lion's share of the entries. His only formidable opponents were from Yorkshire—Messrs. Barker and Wilkinson—who brought some very distinguished visitors. In fact, the great attraction of the meeting appeared to be Mr. Barker's first prize Chester sow, Lady Havelock. During the whole day her ladyship had a company five or six deep, struggling for a sight of her; and certainly, as far as length, size, and over-feeding can go to make a prize pig, she is a wonder. But it is hardly from some such helpless obesity as this that the Scotch will obtain what they want—a better sort of pig. In a proper state, perhaps, there could be none superior to such as Mr. Barker sent on; but pampered as they are, "the best to breed from" is simply an absurdity.

Further: there was a poultry show, which we did not see, a flower show we only heard of, a grand ball, and what should have been a grand dinner. But as his Royal Highness did not come to it, the farmers very loyally followed his example; and one of Edgington's marquees, with room for a thousand, dined something under three hundred. The new President of the Society, the Duke of Atholl, read himself in as chairman, and we can only say His Grace's apologies in doing so were not needed. He went well to the point of what he had to do, was never tedious nor prosy, and set an example which was admirably followed. Nothing could have gone better. There was little we are called on to report; the chief point, indeed, of the different addresses being a well-merited compliment to the same man. The Duke declared how easy his duties became with the assistance of Mr. Hall Maxwell. The local committee half regretted they had not had more to do, in consequence of the complete arrangements of Mr. Maxwell. The Provost, the Judges, and exhibitors—"neebors" and strangers—had all a word of thanks for Mr. Maxwell. We can only repeat that we believe this expression of feeling was really deserved. The ability and energy of the Secretary are everything to the meeting; and if he is now and then a little quick and decided in his manner, we must remember how much he has to do, and how much depends upon him.

Professor Anderson's lecture was on "The Progress of Scientific Agriculture." The full report of this is reserved for the Society's Journal. We can, however, afford to wait for it; for the address was hardly in place, and certainly not up to Mr. Anderson's previous successes in this way.

PRIZE LIST.

CATTLE.

SHORT-HORNS.

JUDGES: T. Crofton, Holywell, Durham.
J. Geddes, Orbliston, Fochabers.
N. Milne, Faldonside, Melrose.

The best bull, calved before 1st January, 1856, 20 sovereigns, and silver medal as breeder, to W. Wetherell, Aldborough, Darlington (Statesman).

The second best, 10 sovereigns, to Lord Kinnaird, Rossie Priory (Lord Raglan).

The third best, the bronze medal, to Wm. Tod, Elphinstone Tower, Tranent (Young Heir-at-Law).

Commended.—Alex. Morison, of Bognie, Mountblairy House, Turriff (Filbert).

The best bull, calved after 1st January, 1856, 20 sovereigns, to George Shepherd, Shethin, Tarves (Cherry Duke).

The second best, ten sovereigns, to Arthur Harvey, of Tillygreig, Aberdeen (Lord Ythan).

The third best, the bronze medal, to James Gulland, Newton of Wemyss, Kirkcaldy (Garlick).

The best bull, calved after 1st January, 1857, 10 sovereigns, to the Viscount Strathallan, Castle Strathallan (Retribution).

The second best, 5 sovereigns, to James Douglas, Athelstaneford, Drem (Beau Bill).

The third best, the bronze medal, to George Shepherd (The Prince).

The best cow of any age, 15 sovereigns, to James Douglas (Ringlet).

The second best, 8 sovereigns, to Wm. Wetherell.

The third best, the bronze medal, to Wm. Tod.

The best heifer, calved after 1st January, 1856, 10 sovereigns, to James Douglas (Queen of Trumps).

The second best, 5 sovereigns, to James Douglas (Venus de Medici).

The third best, the bronze medal, to James Gulland (Lady Munster).

The best heifer, calved after 1st January, 1857, 8 sovereigns, to James Douglas (Titania).

The second best, 4 sovereigns, to James Douglas (Grand Sultana).

The third best, the bronze medal, to James Douglas (Luna).

Commended.—A. Cruickshank, Sittyton, for two heifers (Nonpareil 20th and Veronica).

BLACK POLLED.

JUDGES: R. Hector, Kintrockat, Brechin.
J. Hutchinson, Monyruy, Peterhead.
G. Lumsden, Aquhorties, Keith-hall.

For the best bull, calved before 1st January, 1856, 20 sovereigns, to William M'Combie, Tillyfour, Aberdeen (Standard Bearer); to the breeder, the silver medal, Alexander Bowie, Mains of Kelly, Arbroath: the gold medal, offered by Mons. Dutrône, Honorary Secretary of the Society for the Prevention of Cruelty to Animals in France, for the best polled bull, was awarded to this bull.

The second best, 10 sovereigns, to Wm. Cosmo Gordon, of Fyvie Castle, Fyvie (Malcolm).

The third best, the bronze medal, to Sir James H. Burnett, of Leys, Bart. (Banks of Dee).

The best bull, calved after 1st January, 1856, 20 sovereigns, to George Brown, Westertown, Fochabers.

The second best, 10 sovereigns, to Wm. J. Tayler, of Glenbarrie, Rothiemay House.

The third best, the bronze medal, to the Trustees of the late Robert Scott, Balwyllo, Brechin.

The best bull, calved after 1st January, 1857, 10 sovereigns, to Alexander Bowie, Mains of Kelly (Young Panmure).

The second best, 5 sovereigns, to Robert Walker, Montbletton, Banff (The Earl).

The third best, the bronze medal, to John Cruickshank, Cloves, Forres.

The best cow of any age, 15 sovereigns, to Wm. M'Combie, Tillyfour (The Belle).

The second best, 8 sovereigns, to John Collie, Ardgay, Elgin (Fair Maid of Perth).

The third best, the bronze medal, to the Earl of Southesk, Kinnaird Castle, Brechin (Dulcinea).

For the best heifer, calved after 1st Jaunary, 1856, 10 sovereigns, to Wm. M'Combie, Tillyfour.

The second best, 5 sovereigns, to Wm. M'Combie, of Easter Skene, Aberdeen.

The third best, the bronze medal, to the Trustees of the late Robert Scott.

For the best heifer, calved after 1st January, 1857, 8 sovereigns, to Wm. M'Combie, Tillyfour.

The second best, 4 sovereigns, to John Cruickshank, Cloves.

The third best, the bronze medal, to the Trustees of the late Robert Scott.

AYRSHIRE.

JUDGES: J. Barr, Barrangry, Bishopton.
R. Russell, Paisley.

The best bull, calved before 1st January, 1856, 20 sovereigns, to John Stewart, Burnside Cottage, Strathaven; to the breeder, the silver medal, Alexander Wilson, Forehouse, Kilbarchan.

The second best, 10 sovereigns, to Sir James Colquhoun, Bart., Rossdhu, Luss, Dumbarton.

The third best, the bronze medal, to John Stewart.

The best bull, calved after 1st January, 1856, 10 sovereigns, to John Stewart.

The second best, 5 sovereigns, to Duncan Keir, Bucklyvie.

The third best, the bronze medal, to John Stewart.

The best cow in milk of any age, 10 sovereigns, to John Stewart.

The second best, 5 sovereigns, to John Stewart.

The third best, the bronze medal, to James Salmon, Benston, Paisley.

Commended.—Lord Kinnaird's cow.

The best cow in calf of any age, 10 sovereigns, to John Stewart.

The second best, 5 sovereigns, to Alexander M'Lachlan, Erskine, Bishopton.

The third best, the bronze medal, to Alexander Wilson, Forehouse, Kilbarchan.

Commended.—Alexander M'Lachlan, Erskine, Bishopton; and another of John Stewart's cows.

The best heifer, calved after 1st January, 1856, 8 sovereigns, to John Stewart.

The second best, 4 sovereigns, to Thomas Sadler, Norton Mains, Ratho.

The third best, the bronze medal, to John Stewart.

Commended.—George Pender, Dumbreck, Kilsyth.

HIGHLAND.

JUDGES: W. M'Combie, Tillyfour, Aberdeen.
J. M'Farlane, Faslane, Helensburgh.

The best bull, calved before 1st January, 1856, 20 sovereigns, to the Marquis of Breadalbane, Taymouth. (To the breeder of the best bull, the silver medal, Alexander Macdonald, Balchallan, Callander.)

The second best, 10 sovereigns, to Wm. Wilson, Whiteside, Forbes.

The third best, the bronze medal, to John M'Laren, Monzie, Blair Athole.

The best bull, calved after 1st January, 1856, 10 sovereigns, to the Marquis of Breadalbane.

The second best, 5 sovereigns, to Lady Pigot, Chippenham Park, Cambridge.

The third best, the bronze medal, to James, John, and Joseph M'Laren, Muirpersie, Kirriemuir.

The best cow of any age, 10 sovereigns, to the Marquis of Breadalbane.

The second best, 5 sovereigns, to James, John, and Joseph, M'Laren.

The third best, the bronze medal, to the Marquis of Breadalbane.

The best heifer, calved after 1st January, 1855, 8 sovereigns, to Harry Shaw, Bogfairn, Tarland.

The second best, 4 sovereigns, to the Marquis of Breadalbane.

The third best, the bronze medal, to Harry Shaw.

The best heifer, calved after 1st January, 1856, 6 sovereigns, to George and J. G. Smith, Minmore, Glenlivat.

The second best, 3 sovereigns, to James, John and Joseph M'Laren.

The third best, the bronze medal, to George and J. G. Smith.

EXTRA STOCK.

JUDGES: J. Cruikshank, Cloves, Elgin.
J. Geddes, Orbliston, Fochabers.
R. Hardie, Harrietfield, Kelso.

The best cross-bred cow of any age, the medium gold medal, to Alexander Aiken, Meikle Endovie, Alford.

The second best, the silver medal, to Walter Scott, Glendronach, Huntly.

The third best, the bronze medal, to John Garden, Mill of Ardlethen, Ellon.

The best cross-bred heifer, calved after 1st January, 1856, the medium gold medal, to Robert Moir, Tarty, Ellon.

The second best, the silver medal, to J, and W. Martin, Aberdeen.

The third best, the bronze medal—*No entry.*

The best cross-bred heifer, calved after 1st January, 1857, the medium gold medal, to Arthur Harvey, Tillygreig, Aberdeen.

The second best, the silver medal, to John Garden.

The third best, the bronze medal, to John Garden.

The best cross-bred ox, calved after 1st January, 1855, the medium gold medal, to Thomas Knowles, Aberdeen.

The second best, the silver medal, to Thomas Stobie, Ballochneck, Bucklyvie.

The third best, the bronze medal, to Thomas Knowles, Aberdeen.

Highly commended.—Bryce Wright, Dowhill, Girvan.

Commended.—Thomas Stobie, Ballochneck, Bucklyvie.

The best cross-bred ox, calved after 1st January, 1856, the medium gold medal, to J. and W. Martin, Aberdeen.

The second best, the silver medal, to Wm. Marr, Upper Mill of Tillyhilt, Tarves.

The third best, the bronze medal, to Wm. Marr.

Commended.—Wm. Lawson, Meikletown of Lessendrum, Huntly.

The best polled ox, calved after 1st January, 1855, the medium gold medal, to Wm. M'Combie.

The second best, the silver medal, to J. and W. Martin.

The third best, the bronze medal, to Thomas Knowles.

Highly commended.—The Earl of Aberdeen.

The best polled ox, calved after 1st January, 1856, the medium gold medal, to Wm. M'Combie.

The second best, the silver medal, to Wm. M'Combie.

The third best, the bronze medal, to Thomas Knowles.

The best Highland ox, calved after 1st January, 1854, medium gold medal, to J. and W. Martin, Aberdeen.

The second best, the silver medal, to the Earl of Aberdeen.

The third best, the bronze medal, to James Stewart, New Market, Aderdeen.

Highly commended.—Another of James Stewart's oxen.

Commended.—The Marquis of Breadalbane.

The best Highland ox, calved after 1st January, 1855, the medium gold medal, to Marr and Milne, Aberdeen.

The second best, the silver medal, to Marr and Milne.

The third best, the bronze medal, to James Stewart.

Commended.—George Lumsden, Aquhorthies, Keith Hall.

EXTRA CATTLE.

THE JUDGES COMMENDED

Robert Walker, Portlethen, Aberdeen (for lot of ten polled cows).

Hugh Watson, Keillor, Coupar-Angus (for polled cow).

Wm. M'Combie, Tillyfour (for two polled heifers, and a polled ox).

Thomas Knowles, Aberdeen (for two polled oxen).

J. and W. Martin, Aberdeen, *highly* (for a lot of ten Highland oxen).

J. and W. Martin, *highly* (for cross-bred ox).

James Steward, Aberdeen (for three cross-breds).

Sir Thomas Gladstone, of Fasque, Bart. (for Alderney bull and cow).

Col. Ramsay, Banchory Lodge, Banchory (for Guernsey bull).

HORSES,

FOR AGRICULTURAL PURPOSES.

JUDGES OF STALLIONS: J. Dalgetty, Shandford, Brechin.
J. Gulland, Newton of Wemyss, Kirkcaldy.
J. Steedman, Boghill, Edinburgh.

The best stallion, foaled before 1st January, 1855, 30 sovereigns, to Wm. Wilson, Leven. (To the breeder of the best stallion, the silver medal, to George Davidson, Dean Park, Balerno.)

The second best, 15 sovereigns, to Alex. Sims, Fawells, Keith-hall.

The third best, the bronze medal, to David Riddell, Kilbowie, Duntocher.

Commended.—Alexander Stevenson, Inchdrewer, Banff.

The best entire colt, foaled after 1st January, 1855, 20 sovereigns, to Peter Crawford, Dumgoyack, Strathblane.

The second best, 10 sovereigns, to David Riddell, Kilbowie, Duntocher.

The third best, the bronze medal, to Charles Phillips, Cracrop, Carlisle.

Commended.—John Cruickshank, Cloves.

The best entire colt, foaled after 1st January, 1856, 15 sovereigns, to Peter Crawford, Dumgoyack, Strathblane.

The second best, the premium of 8 sovereigns, to John Black, Cairnbeath, Ellon.

For the third best, the bronze medal, to Thomas Bell, Ballinshee, Kirriemuir.

Commended.—James Paul, Burnside, Peterhead.

The best entire colt, foaled after 1st January, 1857, 10 sovereigns, to Archibald K. Leitch, Inchstelly, Forres.

The second best, 5 sovereigns, to James Salmon, Benston, Paisley.

The third best, George Williamson, Auldtown, Turriff.

Commended.—John Garden, Mill of Ardlethen.

JUDGES OF MARES: S. Clark, Manswrae, Kilbarchan.
J. Gibson, Woolmet, Dalkeith.

The best mare with foal at foot, foaled before 1st January, 1855, 20 sovereigns, to David Logan, Netherton, Renfrew.

The second best, 10 sovereigns, to James Russell, Shawhill, Newton Mearns.

The third best, the bronze medal, to James Wilson, Gourdas, Fyvie.

Commended.—Alexander Donald, Rendal, Keith-hall.

The best mare (in foal) foaled before 1st January, 1855, 15 sovereigns, to Alexander Watt, Rannieston, Ellon.

The second best, 8 sovereigns, to Wm. Taylor, Towie, Turriff.

The third best, the bronze medal, to Charles Smith, Boat of Hatton, Fintray.

Commended.—James Cowpar, Auchorachan, Ballindalloch.

The best filly, foaled after 1st January, 1855, 10 sovereigns, to W. Ironside, Clockerickford, Ellon.

The second best, the premium of 5 sovereigns, to David Riddell, Kilbowie, Duntocher.

The third best, the bronze medal, Dugald Napier, Milton-street, Glasgow.

Commended.—Laurence Adamson, Bankhead, Leven.

The best filly, foaled after 1st January, 1856, 8 sovereigns. to James Kerr, Barrodger, Lochwinnoch.

The second best, the premium of 4 sovereigns, to Wm. Wilson, Whiteside, Forbes.

The third best, the bronze medal, to Alex. Sim, Fawells, Keith-hall.

Commended.—Wm. Scott, North Leys, Banchory.

The best filly, foaled after 1st January, 1857, 6 sovereigns, to Alex. M'William, Bucharn, Huntly.

The second best, 3 sovereigns, to Andrew Edwards, South Kirkhill, Nigg, Aberdeen.

The third best, the bronze medal, to Wm. Harvey, Monykebbock, Aberdeen.

Commended.—Wm. Scott, Wrangham, Culsalmond.

EXTRA HORSES.

THE JUDGES COMMENDED

Mrs. Cheyne, of Lismore (for thorough-bred stallion, "Antelope).

Sir James Colquhoun, of Luss, Bart. (for thorough-bred stallion).

Wm. M'Combie, of Easter Skene, Aberdeen (for pair of work-horses).

George Williamson, Auldtown, Turriff (for cart-horse—the first prize at Inverness).

William Douglas, Overtown, Harray, Orkney (for roadster).

Francis Shepherd, Millbank, Maryculter (for roadster).

John Ligertwood, Loirston, Aberdeen (for roadster).

Robert Moir, Tarty, Ellon, *highly* (for two years old gelding).

George Harrison, St. Andrew-street, Aberdeen, *highly* (for pony).

SHEEP.

LEICESTERS.

JUDGES: J. Douglas, Athelstaneford, Drem.
G. Hope, Fenton Barns, Drem.
W. Torr, Aylesby, Lincoln.

The best tup, not more than four-shear, 10 sovereigns, to Samuel Wiley, Brandsby, York.

The second best, 5 sovereigns, to S. Wiley.

The third best, the bronze medal, to Lord Kinnaird.

Highly commended.—Another of Lord Kinnaird's rams.

The best Dinmont or shearling tup, 10 sovereigns, to Thomas Cockburn, Sisterpath, Dunse.

The second best, 5 sovereigns, to S. Wiley.

The third best, the bronze medal, to Thomas Cockburn.

Commended.—Another of Thomas Cockburn's tups.

The best pen of five ewes, not more than four-shear, 8 sovereigns, to John Collie, Ardgay, Elgin.

The second best, 4 sovereigns, to the Duke of Richmond, Gordon Castle, Fochbars.

The third best, the bronze medal, to Thomas Watson, Esperton, Gorebridge.

The best pen of five shearling ewes or gimmers, 8 sovereigns, to the Duke of Richmond.

The second best, 4 sovereigns, to S. Wiley.

The third best, the bronze medal, to John Collie.

Commended.—Thomas Simson, Blainslie, Lauder.

CHEVIOTS.

JUDGES: A. Hall, Blasirich, Golspie.
Nicol Milne, Faldonside.
J. Oliver, Burnfoot, Borthwickbrae, Hawick.

The best tup, not more than four-shear, 10 sovereigns, to Thomas Elliot, Hindhope, Jedburgh.

The second best, 5 sovereigns, to James Brydon, Moodlaw, Langholm.

The third best, the bronze medal, to J. Brydon.

Commended.—Wm. and Jas. Gunn, Glendhu, Golspie.

The best dinmont or shearling tup, 10 sovereigns, to J. Brydon.

The second best, 5 sovereigns, to David Mundell, Auchindrean, Dingwall.

The third best, the bronze medal, to Thomas Elliot, Hindhope, Jedburgh.

Commended.—John Carruthers, Kirkhill, Moffatt.

The best pen of five ewes, not more than four-shear, 8 sovereigns, to J. Brydon.

The second best, 4 sovereigns, to Mrs. Major Oliver, Bush, Jedburgh.

The third best, the bronze medal, to the Duchess of Gordon, Huntly Lodge.

Commended.—Wm. and Jas. Gunn.

The best pen of five shearling ewes or gimmers, 8 sovereigns, to J. Brydon.

The second best, 4 sovereigns, to Mrs. Major Oliver.

The third best, the bronze medal, to Robert Turnbull, Merrylaw, Hawick.

Commended.—Wm. and Jas. Gunn, Glendhu.

BLACKFACED.

JUDGES: J. Archibald, Duddingston, South Queensferry.
J. Maclean, Braidwood.
J. Mc Farlane, Falsane, Helensburgh.

The best tup, not more than four-shear, 10 sovereigns, to James Milligan, Hayfield, Thornhill.

The second best, 5 sovereigns, to James Watson, Mitchell Hill, Biggar.

The third best, the bronze medal, to James Milligan.

The best dinmont or shearling tup, 10 sovereigns, to James Milligan.

The second best, 5 sovereigns, to James Milligan.

The third best, the bronze medal to John Watson, Nisbet, Biggar.

The best pen of five ewes, not more than four-shear, 8 sovereigns, to J. J. & J. M'Laren, Cornalaerick, Braemar.

The second best, 4 sovereigns, to John M'Laren, Monzie, Blair Atholl.

The third best, the bronze medal, to William Turner, Gavinburn, Old Kilpatrick.

The best pen of five shearling ewes or gimmers, 8 sovereigns, to James Brydon, Kennelhead, Moffat.

The second best, 4 sovereigns, to Captain Kennedy, Glen App, Girvan.

The third best, the bronze medal, to J. J. & J. M'Laren.

SOUTHDOWNS.

JUDGES: J. M'Laren, Mill Hill, Inchture.
G. Milne, Haddo, Methlic.
W. Wetherell, Durham.

The best tup, not more than four shear, 10 sovereigns, to Robert Scott Skirving, Camptown, Haddington.

The second best, 5 sovereigns, to the Duke of Richmond, Gordon Castle.

The third best, the bronze medal, to R. S. Skirving.

The best dinmont or shearling tup, 10 sovereigns, to R. S. Skirving.

The second best, five sovereigns, to R. S. Skirving.

The third best, the bronze medal, to the Duke of Richmond.

The best pen of five ewes, not more than four-shear, 8 sovereigns, to R. S. Skirving.

The second best, four sovereigns, to John Hutchinson, Monyruy, Peterhead.

The third best, the bronze medal, to J. Hutchinson.

For the best pen of five shearling ewes or gimmers, 8 sovereigns, to the Duke of Richmond.

The second best, 4 sovereigns, to R. S. Skirving.

The third best, the bronze medal, to J. Hutchinson.

LONG-WOOLLED SHEEP OTHER THAN LEICESTER.

JUDGES: J. Douglas.
G. Hope.
W. Torr.

The best tup, not more than four-shear, ten sovereigns, to R. S. Skirving (Cotswold).

The second best, five sovereigns, to Lord Kinnaird (Cotswold).

The third best, the bronze medal, to the Duchess of Gordon (Cotswold).

The best pen of five ewes, not more than four-shear, eight sovereigns, to R. S. Skirving (Cotswold).

The second best, four sovereigns, to Lord Kinnaird (Cotswold).

The third best, the bronze medal, to the Duchess of Gordon (Cotswold).

EXTRA SHEEP.

THE JUDGES COMMENDED:

Thomas Cockburn, Sisterpath, Dunse (for Leicester tup).

James Kemp, Kemptown, Forres (for five Leicester lambs).

David Gibb, Bridge of Dye, Banchory (for five blackfaced ewes).

John Garden, Mill of Ardlethen, Ellon (for cross-bred tup).

SWINE.

JUDGES:—J. Curror, Comiston, Edinburgh.
J. Wilson, Cowden, Dalkeith.

The best boar, large breed, eight sovereigns, to J. Skinner, Woodside, Aberdeen.

The second best, four sovereigns, to Thomas Sadler, Norton Mains, Ratho.

The third best, the bronze medal, to J. Skinner.

The best boar, small breed, eight sovereigns, to Joseph Wilkinson, Roundhay, Leeds.

The second best, four sovereigns, to T. Barker, Woodhouse-lane, Leeds.

The third best, the bronze medal, to the Duke of Buccleuch, Dalkeith Park.

Highly commended.—John Gibson, Woolmet, Dalkeith.

The best sow, large breed, six sovereigns, to T. Barker.

The second best, three sovereigns, to J. Wilkinson.

The third best, the bronze medal, to John M'Kay, Cross Arthurlie, Barrhead.

The best sow, small breed, six sovereigns, to J. Wilkinson.

The second best, three sovereigns, to J. Wilkinson.

The third best, the bronze medal, to Edward Savage, Royal Lunatic Asylum, Aberdeen.

Commended.—John Arklay, Powmill, Brechin, for two sows.

The best pen of three pigs, not exceeding eight months old, four sovereigns, to J. Skinner.

The second best, two sovereigns, to the Earl of Aberdeen.

The third best, the bronze medal, to J. Skinner.

Commended.—John Arklay.

EXTRA PIGS.

Commended.—The Duke of Buccleuch (for three pigs of small breed).

PRIZES FOR IMPLEMENTS.

JUDGES: J. Abernethy, C.E., Aberdeen.
R. Copland, Haddo.
J. Gibson, Woolmet, Dalkeith.
G. Hope, Fenton Barns, Drem.
J. M'Lean, Braidwood, Penicuik.
J. Milne, of Leithen.
P. Porter, Monymusk, Aberdeen.
J. Steedman, Bog Hall, Edinburgh.
J. Stirling, C.E., Edinburgh.

The best two-horse plough for general purposes, three sovereigns, to James Taylor, Cobairdy, Huntly.

Commended.—John Gray and Co., Uddingston, Glasgow; and Geo. Sellar and Son, Huntly.

The best trench or deep-furrow plough, three sovereigns, to George Sellar and Son.

Commended.—John Gray and Co.; and Robert Law, Shettleston, Glasgow.

The best subsoil plough for two horses, four sovereigns, to Robert Law.

Commended.—James Kirkwood, Tranent.

The best subsoil plough, for moor or stony land, for three or four horses, four sovereigns, to R. Law.

Commended.—John Gray and Co.

The best double mould-board plough for forming drills, with boards adapted for bulking and lifting potatoes, three sovereigns, to P. M'Gregor and Sons, Keith.

Commended.—John Gray and Co.

The best ribbing or drill-paring plough, two sovereigns, to James Buchan, Balquhain, Pitcaple.

The best two-horse grubber or cultivator, four sovereigns, to James Kirkwood, Tranent.

Commended.—Andrew Shivas, Upper Crichie, Old Deer; and William Wilson and Son, Berwick-on-Tweed.

The best drill-grubber for green crops, two sovereigns, to J. Kirkwood.

Commended.—Robert Law; Wm. Millar, Airntully, Stanley, Perthshire; and James Taylor.

The best Norwegian harrow, four sovereigns, to J. Kirkwood.

The best consolidating land roller, five sovereigns, to Alex. Dick, Smithy Green, Liberton.

Commended.—W. Wilson and Son.

The best pulverizing land-roller, five sovereigns, to W. Wilson and Son.

Commended.—J. Kirkwood.

The best land-presser for preparing seed-bed for grain, five sovereigns, to George Annand, Port Elphinstone, Keith-Hall.

The best ribbing machine, two sovereigns, to James Kirkwood.

The best harrows for heavy land, three sovereigns, to E. H. Bentall, Heybridge, Maldon, Essex.

Commended.—Robert Law.

The best harrows for light land, three sovereigns, to E. H. Bentall.

Commended.—John Gray and Co., and Robert Law.

The best harrows for covering grass seeds, 3 sovereigns, to E. H. Bentall.

Commended.—John Gray and Co.

The best common swing-trees or draught-bars, 1 sovereign, to James Kirkwood.

The best equalizing swing-trees or draught-bars, 1 sovereign, to James Kirkwood.

The best horse-hoe for drilled grain crops, 6 sovereigns, to Mrs. Thomas Sherriff, West Barns, Dunbar.

The best broadcast sowing-machine for grain, 6 sovereigns, to James Finlayson and Sons, Gighty Burn, Arbroath.

Commended.—Alex. Dick, Smithy Green, Liberton.

The best drill sowing-machine for grain, 6 sovereigns, to Mrs. Thomas Sherriff.

The best sowing-machines for grass seeds, 6 sovereigns, to James Finlayson and Sons.

Commended.—Kemp, Murray, and Nicholson, Dumbarton Road, Stirling.

The best sowing-machine for turnips, 4 sovereigns, to James Finlayson and Sons

Commended.—John Gray and Co.

The best sowing-machine for turnips with manure.—*No entry.*

The best dibbling or drop-sowing machine for turnips with manure.—*No entry.*

The best sowing-machine for mangold-wurzel, 4 sovereigns, to Peter M'Lellan, Abernethy.

The best sowing-machine for carrots, 1 sovereign, to Mrs. Thomas Sherriff.

The best three-row sowing-machine for beans, 4 sovereigns, to Mrs. Thomas Sherriff.

The best one-row sowing-machine for beans, 4 sovereigns, to Tyrie and Burry, Errol.

The best machine for distributing guano in drill or broadcast, 6 sovereigns, to Mrs. Thomas Sherriff.

Commended.—Robert Steuart, of Carfin.

The best liquid manure distributing-machine, 4 sovereigns, to Young, Peddie, and Co., Edinburgh and Glasgow.

The best liquid manure pump, 2 sovereigns, to David Falconer, Causeyside-street, Paisley.

The best machine for singling turnips, 4 sovereigns, to Peter M'Gregor and Sons, Keith.

Commended.—William Wilson and Son.

The best machine for raising potatoes, 4 sovereigns, to Robert Law, Shettleston, Glasgow.

The best scythe for general purposes, 1 sovereign, to Wm. Hanton, Newton of Ethie, Arbroath.

The best reaping machine, twenty sovereigns, Lord Kinnaird, Rossie Priory, Inchture.

Commended.—George Bell, Inchmichael Errol, and another of Lord Kinnaird's reapers.

The best horse stubble or hay-rake, two sovereigns, to Young, Peddie, and Co.

Commended.—Smith and Ashby, Stamford.

The best hand stubble or hay rake, two sovereigns, Wm. Kirkwood, Duddingston Mills, Portobello.

The best thrashing machine, adapted for two or more horses, six sovereigns, to Williamson Brothers, Canal Iron Works, Kendal.

The best steam-engine and machine to thrash, shake, clean, and prepare grain for market, thirty sovereigns, to R. Robey and Co., Engineers, Lincoln.

The best dressing-fanners for grain, four sovereigns, to Robert Boby, Bury St. Edmunds.

Commended.—John Richardson, Brunton-place, Warwick-road, Carlisle.

The best dressing-fanners for grass seeds, four sovereigns, to Robert Reid, Coleston Mill, Arbroath.

The best weighing-machine for grain, four sovereigns, to Heriot and Co., 115, Græme-street, Glasgow.

Commended.—A. and W. Smith and Co., Eglinton Engine Works, Glasgow.

The best weighing machine, indicating from 1lb. to 2 tons, four sovereigns, to A. and W. Smith and Co.

The best straw-cutter for hand labour, two sovereigns, to Richmond and Chandler, Manchester and Liverpool.

The best straw-cutter for power, three sovereigns, to Richmond and Chandler.

The best turnip-cutter for sheep, two sovereigns, to Richmond and Chandler.

The best turnip-cutter for cattle, two sovereigns, to Picksley, Sims, and Co., Bedford Foundry, Leigh.

The best turnip-cutter for sheep, attachable to a cart, three sovereigns, to James Kirkwood.

The best machine for pulping turnips, two sovereigns, to E. H. Bentall.

The best root-washer, one sovereign, to Richmond and Chandler.

The best steam apparatus for preparing food, four sovereigns, to Smith Brothers and Co., Kingston Engine Works, Kinning-street, Glasgow.

The best feeding troughs for byres, two sovereigns, to John Robson, Cook-street, Glasgow.

The best feeding troughs for sheep, five sovereigns, to Wm. Kirkwood, Duddingston Mills, Portobello.

The best sheep-fodder rack, two sovereigns, to J. Kirkwood.

The best linseed bruiser for hand labour, two sovereigns, to E. R. and F. Turner, St. Peter's Iron Works, Ipswich.

For the best oilcake bruiser for hand-labour, one sovereign, to E. H. Bentall.

Commended.—Richmond and Chandler.

The best grinder or bruiser for power, six sovereigns, to Richmond and Chandler.

Commended.—E. R. and F. Turner.

The best churn worked by hand, two sovereigns, Philip Hunter, Edinburgh.

The best churn worked by power, three sovereigns, to P. Hunter.

The best cheese-press, two sovereigns, to John Gray and Co.

The best curd-cutter for dairy purposes.—*No entry.*

The best general set of dairy utensils, one sovereign, to P. Hunter.

The best one-horse farm cart, four sovereigns, James Simpson and Co., Peterhead.

Commended.—Robert Mitchell and Son, Peterhead.

The best harvest cart, four sovereigns, to Alexander Scrimgeour, Methven, Perth.

The best light spring-cart, four sovereigns, to R. Law.

The best apparatus for conveying implements on the farm.—*No award.*

The best traverse divisions, rack, and manger, one sovereign, to Harper and Co., Aberdeen.

The best farm harness, one sovereign, to Hay Downie, saddler, Corstorphine.

The best stone or iron stack-pillars with framework, two sovereigns, to Young, Peddie, and Co.

The best field-gate constructed entirely of iron, one sovereign, to Young, Peddie, and Co.

The best field-gate not entirely constructed of iron, one sovereign, to Thomas Wight, Perth.

The best dunghill-gate, to open at different elevations, one sovereign, to Harper and Co.

The best iron hurdles for cattle-fence, one sovereign, to Harper and Co.

The best iron netting for sheep-fence, one sovereign, to Young, Peddie, and Co.

The best light wooden hurdles for sheep, one sovereign, to Harper and Co.

The best pipe and tile machine for hand or power.—*No entry.*

The best tiles and pipes for field drainage, one sovereign, to John Robson, Cook-street, Glasgow.

Commended.—Wm. Brodie, Seafield Tile Works, Dunbar.

The best glazed socketed pipes for sewerage, 1 sovereign, to William Keith, jun., Aberdeen.

Commended.—John Robson.

The best tools for cutting field drains.—*No entry.*

The best tools for cutting open drains in hill pasture.—*No entry.*

The best general set of hand implements for the farm, 1 sovereign, to Benjamin Reid and Co., Aberdeen.

EXTRA IMPLEMENTS.

THE JUDGES COMMENDED

For ornamental rustic seats, John Tod Alexander, Panmure, Carnoustie.

For patent corn screen, Robert Boby, Bury St. Edmunds.

For rope twisting machine, Robert Brown, Megray, Stonehaven.

For plough, James Buchan, Balquhain, Pitcaple.

For 30-gallon garden or farm engine, T. Clunes, Aberdeen.

For potato riddle, Thomas Gorrie, Perth.

For "The farmer's veterinary medicine chest," Grant and Donald, Union-street, Aberdeen.

For gravel weeding machine, David Hanton, Lunan, Chance Inn, Arbroath.

For patent dressing apparatus for grain, Robert Hislop, jun., Prestonpans—*Highly.*

For slate kitchen sink, slate cistern, slate bath, slate manger for stable, and slate meat safe, Wm. Keith, jun., Commerce-street, Aberdeen.

For improved portable sheep fence making machine, Alex. Macpherson, [illegible] Cottage, Carstairs.

For potato riddling machine, Robert R. May, Dunecht House, Echt.

For national coal gas apparatus, J. T. B. Porter, Lincoln.

For steel mould boards, George Sellar and Son.

For patent haymaking machine, Smith and Ashby.

For meat cooler for the farm yard, John Wingate, Alloa.

MANCHESTER AND LIVERPOOL AGRICULTURAL SOCIETY.

The original society, on which the present one was formed, was founded as long back as the year 1767, and last year the Liverpool Society, instituted in 1830, was united with it, under the above title. The show of live stock (including poultry), implements, roots, &c , took place in Manchester on Thursday and Friday, the 9th and 10th September. The catalogue this year showed 1,545 entries; 1,053 being for the Society's prizes, and the remainder for those given by the Local Society. The total more than doubles the entries for last year's show at Warrington; it is nearly 500 in excess of those for the previously most extensive display, that held at Wigan, in 1856; and in 1854, when the meeting was held at Altrincham (and might therefore be regarded much as if held in Manchester), the total number of entries was only 840.

The following are the first and second prizes, which were awarded by the judges:

SHORTHORN BULLS.

Between two and three years old: Mr. Dickenson, Upholland, near Wigan, 10*l.*; Mr. J. Parr, Wigan, 5*l.*

Not more than two years old: Mr. H. Ambler, Watkinson Hall, near Halifax, 8*l.*

Bull-calf, not more than one year old: Mr. T. Bell, Rainford, St. Helen's, 4*l.*; Mr. J. K. Farnworth, Alderley Edge, 2*l.*

A silver medal was awarded to Mr. S. W. Ackerley, of Hazlewood, for extra stock, a shorthorned bull.

BULLS OF ANY BREED.

Bull, between two and four years old, exhibited by tenant farmers: Mr. T. Forest, Tarporley, 10*l.*; Mr. R. Gardner, of Singleton, 5*l.*

Not more than two years old (tenant farmers): Mr. R. Birch, Aintree, 8*l.*; Mr. J. Dorning, Swinton, 4*l.*

Bull-calf, not more than one year old (tenant farmers): Mr. J. Heawood, Reddish, 4*l.*; Mr. H. Higson, Pendleton, 2*l.*

COWS AND HEIFERS, ANY BREED.

Cow or heifer in-milk or in-calf: Mr. H. Ambler, Halifax, 5*l.*; Mr. J. Dickenson, Wigan, 2*l.* 10s.

Two-year-old heifer: Mr. H. Ambler, 5*l.*; Mr. T. Forrest, 2*l.* 10s.

Yearling heifer: Mr. H. Ambler, 3*l.*; ditto, 1*l.* 10s.

Cow for dairy purposes (tenant farmers): Mr. H. Higson, 5*l.*; Mr. J. Sutcliffe, Knutsford, 2*l.* 10s.

Pair of two-year-old heifers (tenant farmers): Mr. J. Dickenson, 5*l.*; Mr. T. Forest, 2*l.* 10s.

Pair of one-year-old heifers (tenant farmers): Mr. H. Lafore, Fazakerley, 5*l.*; Mr. T. Forrest, 2*l.* 10s.

Not less than six milch cows (farmers), Mr. J. Heawood, 5*l.*

Not less than six calves (reared by a farmer, and not more than ten months old): Mr. T. Atherton Speke, 3*l.*; Mr. S. Dorning, 2*l.* 10s.

HORSES.—STALLIONS.

For agricultural purposes—Mr. J. Dale, Liverpool, £6; Mr. J. Lowe, Wheelock, £3.

For drag purposes—Mr. J. Robinson, Broughton.

For road purposes—Mr. J. Brogden, Sale, £6; Mr. J. Cross, Much Wootton, £3.

Thorough-bred—Mr. J. Dagger, Liverpool, £6; Mr. T. Smith, Northwich, £3.

BROOD MARES.

For agricultural purposes—Mr. T. Smith, £5; Mr. W. Pendlebury, Bolton, £2 10s.

For roadsters or coaching—Mr. J. Foster, Mere, £5; Mr. C. Garfit, Tabley, £2 10s.

OTHER DESCRIPTIONS.

Three-year-old gelding or filly, for agricultural purposes—Mr. J. Torrington, Ormskirk, £5; Mr. R. Whitelegg, Ashton-on-Mersey, £2 10s.

Two-year-old gelding or filly, for agricultural purposes—Messrs. T. Boothman and Co., Manchester, £4; the Earl of Crawford and Balcarres, £2.

One-year-old gelding or filly, for agricultural purposes—Mr. S. Lees, Preston Brook, £3; Mr. H. Higson, £1 10s.

Three-year-old half-bred gelding or filly—Mr. R. Birch, Aintree, £5; Mr. C. Garfit, £2 10s.

Mare or gelding in use as roadster—Mr. W. Richardson, Manchester, £5; Mr. T. J. L. Brook, Knutsford, £2 10s.

Pair of draught horses employed in the district—Mr. J. Munn, Stand, £5; Mr. R. Lupton, Liverpool, £2 10s.

Pair of horses for agriculture (tenant farmer)—Mr. J. Birch, Orrell, £5; Mr. S. Lees, Preston Brook, £2 10s.

SHEEP.

Leicester ram—Mr. L. F. Lloyd, Mold, £3.

Shropshire Down ram—Mr. A. Stavert, Kirkham, £3.

Longwoolled ram—Earl of Crawford and Balcarres, £3.

Three Leicester breeding ewes—Mr. J. S. Wilson, Norton, £3.

Three shearling Leicestershire ewes—Mr. J. S. Wilson, £3.

Leicester ram—Mr. A. Stavert, £3.

Shearling Leicester ram—Mr. A. Stavert, £2.

Three Leicester lambs—Mr. J. S. Wilson, £2 10s.

Three shortwoolled breeding ewes—Mr. A. Stavert, £3.

Shortwoolled ram—Mr. L. F. Lloyd, £2.

Three shortwoolled lambs—Mr. J. S. Wilson, £2 10s.

The following is a list of the prizes awarded by the local committee (open to general competition) for horned cattle and horses:

HORNED CATTLE.

Best bull of any breed, not exceeding three years old—Mr. T. Waller, jun., Mellor, near Stockport, £10; Mr. H. Higson, Pendleton, £5.

Bull not exceeding two years old—Mr. H. Ambler, Halifax, £10; Mr. J. Dickenson, Wigan, £5.

Four dairy cows, in milk or in calf (farmers' or dairymen's)—Mr. J. Heawood, Reddish, £10; Mr. J. Parr, Warrington, £5.

Pair of heifers, between two and three years old (farmers')—Mr. T. Atherton, Speke, £10.

Pair of stirks, between one and two years old (farmers')—Mr. H. Ambler, £10.

Six dairy cows, exhibited by cattle dealers—Mr. W. Green, Kersall Hall, Manchester, £20; Mr. J. Slingsby, Salford, £10.

The exhibitor of the best pair of shorthorned heifers, showing the most symmetry, quality of meat, and weight—Mr. J. Markendale. Ordsall Hall, £10. He also took the second prize (£5), and the £10 and £5 prize for the best pair of West Highland heifers.

Best pair of heifers, bred and fed in Ireland—Mr. J. Slingsby, £10.

HORSES.

Best stallion, draught kind—Mr. J. Robinson, Manchester, £10; Mr. P. Nightingale, Worsley, £5.

Brood mare, draught, with foal at foot—Messrs. W. Liptrot and Sons, Wigan, £10; Messrs. W. and J. Worthington, Manchester, £5.

Three-year-old colt or filly, draught—Mr. T. Smith, Northwich, £8; Mr. W. Atherton, sen., £4.

Two-year-old colt or filly, draught—Mr. R. Whitelegg, Ashton-on-Mersey, £8; Mr. T. Smith, £4.

One-year-old colt or filly, draught—Mr. W. Boyle, Crumpsall, £5; Mr. T. Slatter, Pilkington, £3.

Stallion, for road purposes—Mr. A. Hairsine, Hayton, £10.

Brood mare, for road purposes, foal at foot—Mr. J. Munn, £10; Mr. T. Smith, £5.

Three-year-old colt or filly, for road purposes—Mr. W. T. Egerton, £8; Mr. J. Dale, Liverpool, £4.

Two-year-old colt or filly, for road purposes—Mr. R. Seed, Garston, £8; Mr. J. S. Wood, Manchester, £4.

Yearling colt or filly, for road purposes—Mr. J. Munn, £5; Mr. Neild, Worsley, £3.

Thoroughbred stallion—Mr. J. Cockshott, Addingham, £10.

CHEESE.

To be made on the exhibitor's farm in Lancashire or Cheshire, or within the limits of the society, namely, 35 miles round Warrington, the cheeses exhibited to be four in number.

Four cheeses not less than 50lbs. weight each, first prize 15*l.*, George Jackson, Old Withington, near Congleton; second prize 10*l.*, William Palin, Stapleford Hall, Chester; third prize 5*l*, H. B. Briscoe, Littleton Old Hall, Chester.

Four cheeses not less than 25lbs. weight each, first prize 10*l.*, P. A. Wood, Over, near Winsford; second prize 5*l.*, Elizabeth Stockton, Mobberly; third prize 3*l.*, W. Acton, Appleton, near Warrington.

BUTTER.

To the exhibitor (being also the producer, residing in Lancashire or Cheshire, or within the limits of the society, viz., 35 miles round Warrington), of the best sample of butter, not less than 5lbs. weight, made up in half-pounds.

First prize 3*l.*, James Butterworth, Pilsworth, near Bury; second prize 2*l.*, Mary Partington, Whittle-in-Keep, near Middleton; third prize 1*l.*, John Rigley, Whitley, near Northwich.

The following prizes were also given by the society, as announced by the Secretary at the Special Meeting.

BEST CULTIVATED FARMS.

Tenant and occupier of not less than 150 acres, 12*l.*, Mr. William Boyes, Speke, near Liverpool; ditto, of not less than 60, or more than 100 acres, 5*l.*, Mr. Henry Gibbons, Toxteth Park, near Liverpool; ditto of not less than 150 acres, 7*l.*, Mr. John Lathbury, Toxteth Farm, near Liverpool; ditto of not less than 100, or more than 150 acres, 5*l.*, Mr. Nicholas Twigge, Halewood, near Liverpool; ditto of not less than 60 or more than 100 acres, 4*l.*, Mr. R. R. Ledger, Grove House, West Derby; ditto of not less than 25, or more than 60 acres, 3*l.*, Mr. James Caldwell, Kirkby, near Prescot; ditto of the best managed dairy or grazing farm of not less than 150 acres, 10*l.*, Mr. Thomas Wild, Weaverham Wood near Northwich.

DRAINING.

Owner of an estate draining for his tenantry, in the year ending 12th May, 1858, the largest quantity of land, in proportion to the area of the estate, on the best system, the Society's silver medal, Mr. Robert Barbour, Bolesworth Castle, neas Chester. Tenanted occupier of not less than 150 acres, draining the greatest quantity, £8, Mr. James Warburton, Bewsey Hall Farm, Warrington, ditto of not less than 70, or more than 100 acres, draining the greatest quantity, £4, Mr. John Aspinall, Kenyon, near Manchester; ditto of not less than 25 or more than 40 acres, draining the greatest quantity, £2, Mr. Thomas Smith, The Lodge, Sandiway, near Northwich.

SUBSOILING.

Tenant and occupier subsoil ploughing the greatest quantity, not less than 4 acres, £3, Mr. Robert Birch, Stand House Farm, Netherton.

LAYING DOWN LAND TO GRASS.

Owner and occupier laying down the greatest quantity, the Society's silver medal, Mr. R. Watt, Speke, near Liverpool. Tenant and occupier of not less than 150 acres, laying down the greatest quantity, not less than 15 acres, in proportion to the extent of arable land, £5, Mrs. Ann Edwards, Sutton Grange, Speke; ditto of not less than 100, or more than 150 acres, laying down the greatest quantity, not less than 10 acres, £4, Mr. William Atherton, jun., Speke; ditto of not less than 50, or more than 100 acres, laying down the greatest quantity, not less than 7 acres, £3, Mr. James Ashton, Speke.

MARLING.

Tenant and occupier of not less than 50, or more than 100 acres, marling not less than 5 acres, £2, Mr. Edward Whitehead, Blackley, near Manchester.

TANKS AND LIQUID MANURE.

Owner and occupier constructing the best tank, £3, Mr. Thomas Smith, the Lodge, Sandiway, near Northwich.

SALE OF MR. OVERMAN'S SOUTH-DOWNS.

The county of Norfolk was, on 3rd Aug., the scene of one of the most interesting agricultural gatherings which have taken place in the eastern district during the present season—in fact, an eminent breeder, with whom we had the pleasure of some conversation on the occasion, spoke of it as *the* meeting. The event was no other than the dispersion by auction of the famed Southdown flock of Mr. Henry Overman, of Weasenham, to which that gentleman has devoted some forty years' close attention. The attendance attracted by a proceeding of such interest to agriculturists was as numerous as could have been anticipated; while the presence of gentlemen from Suffolk, Essex, Lincolnshire, Shropshire, Dorsetshire, Nottinghamshire, &c., proved that the attention excited extended far beyond the limits of Norfolk. In fact, the number of buyers and lookers-on who clustered round the ring, in which the future destination of Mr. Overman's beautiful animals was decided, was greater than at the important letting at Babraham, which has acquired a world-wide celebrity. But the Babraham meeting is an annual institution, while such a sale as Mr. Overman's was a rare event, to witness which every one interested in sheep breeding would naturally make an effort.

Weasenham is a parish about six miles from the neighbouring market town of Fakenham, and is comprised in the agriculturally-classic Holkham district, on which the genius and energy of the late Lord Leicester—better known as Coke of Holkham—conferred such lasting benefits. Conveyances from the Fakenham station of the Eastern Counties Railway bore most of the distant visitors six miles through a country which elicited many encomiums, to the scene from which Mr. Overman has so often gone forth "conquering and to conquer." The sale took place in one of the fields near the farm buildings, and the sheep were arranged in pens according to their several classes; while before a carriage, which served as a rostrum for the auctioneer—Mr. Strafford, of Euston-square, who plays so many similar parts throughout the country—a ring was formed, into which each lot was called and discussed *seriatim.* The total number of sheep and lambs on the ground was 749, the numbers in the various classes being as follows: 190 shearling ewes, 87 four-toothed ewes, 195 six-toothed or full-mouthed ewes, 180 ewe lambs, 21 shearling rams, 22 two, three, and four-shear rams, and 41 ram lambs.

The company began to assemble soon after ten o'clock, and poured in steadily till one, when an adjournment took place in the direction of the marquee, in which a substantial luncheon was prepared with the utmost hospitality for all comers. Between 200 and 300 gentlemen sat down to three lines of well-supplied tables, running the entire length of the tent. The chair was occupied by Mr. Anthony Hamond, of Westacre, who was supported on one side by Mr. John Hudson, of Castleacre, and on the other by Mr.

Jonas Webb, of Babraham. Among the other occupants of the head table were Sir E. Baker (Dorsetshire), Sir Willoughby Jones (Norfolk), and Mr. Brampton Gurdon, M.P. for West Norfolk; and the general company, of whom it was impossible to obtain anything like a complete list, included the Hon. Mr. Ryder, Messrs. J. Clarke (Long Sutton), Lugar (Hengrave), T. Crisp (Butley Abbey), Hawkins (Smallbridge), G. M. Sexton (Cockfield), H. Sexton (Wherstead), Payne (Risley), G. Ward (Bentley), Empson (Essex), Jukes (Shropshire), Fulcher (the representative of Lord Sondes), Woods (Lord Walsingham), Woods (Mr. Foljambe, Nottinghamshire), Kendle (Weasenham), K. Cooper (Duke of Grafton), E. Farrer (Sporle), Rev. H. E. Knatchbull (Elmham), H. E. Blythe (Burnham), R. Flowerdew (representative of the Marquis of Townsend), R. Flowerdew jun., G. P. Tuxford (London), Isaac Everitt (Limpenhoe), J. Everitt (South Creake), Matson (St. Osyth, Essex), S. Abbott (Castleacre), Elliott (Shelton), S. Leeds, T. Browne (Thrigley), Matthews (Sporle), Dobito (Suffolk), R. N. Bacon (Norwich), H. C. Bonner, England, Cubitt, Wellingham, Field, Lubbuck, R. Butcher, R. Butcher jun., F. Butcher, Messent, Tuthill, J. C. Caldwell, Farquharson, W. Beck, H. Beck, Sherringham, M. Griggs, J. Hunt, T. Chambers, Coleman, Newton, Hebgin, J. Bale, Steadman, George, Reid, Sewell, H. Aylmer, Brackenbury, Paul, Richardson, Syder, Southgate, Thurnall, J. Whaites, C. Whaites, W. Whaites, *cum multis aliis.*

To the speeches at the collation it will not be necessary to devote much space, as they were few in number and limited in length. The phrase "at the collation" is literally correct; for as time pressed, and a good deal of anxiety was manifested to get to business, the Chairman proposed the usual loyal toasts while the company were busily engaged in satisfying the inner man. The healths of her Majesty and Prince Albert—with reference to whom the usual allusion was made to the encouragement his Royal Highness has afforded to agriculture—were proposed and drunk amid a curious knife and fork accompaniment, which produced a very novel and amusing effect. The curiosity of the guests to hear the observations of Mr. Hamond (who generally speaks well and to the point) appeared to get the better of their appetite, for the rapid clatter gradually subsided into a slow and measured cadence, which was steadily maintained by those who continued to devote themselves to the good things before them. To the toast of the "Earl of Leicester, Lord Lieutenant of the county," Mr. J. Hudson made a brief response, in the course of which he expressed the pleasure it afforded him to see so numerous a party assembled on the occasion to examine the magnificent sheep which Mr. Overman exhibited. The toast of the "County Members" followed, and was acknowledged by Mr. Gurdon, M.P., who said it gave him great pleasure to meet so many old friends and so many distinguished agriculturists, who had no doubt assembled with the full intention of securing some specimens of the splendid flock of the worthy host. The proceedings now assuming a more special character, the speeches call for a more extended notice.

The CHAIRMAN said he rose to propose the toast of the day with mingled feelings of pleasure and pain—pleasure to see so fine an exhibition of stock, and so large a company, and to hear so many remarks showing an appreciation of the value of the animals shown: Mr. Overman, a man of singular perseverance and good judgment, had spared no expense to arrive at the perfection he had attained. And it was a matter of pain to him (Mr. Hamond) that Mr. Overman was retiring from a pursuit in which he had not only been most successful, but which he had adorned by his straightforwardness and integrity (cheers). He (Mr. Hamond) felt pain, because he frequently passed Mr. Overman's doors, and he should lose a sight with which he was always pleased—an admirable, well-managed flock of sheep; a flock so well managed that he did not know another in the county which could be compared with it. He had to congratulate Mr. Overman upon the large attendance—caused not merely by the advertisement of the meeting—not merely by the excellence of his sheep—but also by the respect which was felt for him (cheers). Brevity of speech was essential to a meeting of this kind, and he (Mr. Hamond) should be most unwise to occupy with his observations more time than was necessary; still he ought to call attention to a young man of great ability, extraordinary industry, and immense pluck and perseverance, who had been most useful to his father in every way in which a good son could assist his parent. Great credit was due to this gentleman; and while drinking the health of the father, he begged also to give "success to the son" (loud cheers).

Mr. OVERMAN (who occupied the vice-chair at the further end of the marquee) rose to express his acknowledgments, and seemed quite overpowered by the warmth of his reception. He said: Mr. Hamond and gentlemen, be assured that I fully appreciate the compliment you have paid me in coming to see my sheep. I have endeavoured to produce animals which might be advantageous to the country generally; and the point to which I have aspired has been to obtain your esteem and good-feeling towards me (cheers). I have much to be thankful for, and many of you to thank for the great kindness you have shown to me on various occasions on which you have stepped out of your way to confer favours upon me. I am sorry, gentlemen, to part with the animals which I have shown to you to-day; but I find that time has worked so upon me, that it is necessary that I should in some degree relax from those duties and from that incessant attention which a flock of Southdown sheep—to be brought forward as those now shown—require at one's hands. My son is about to leave me; and it would be exceedingly unwise, and exceedingly wrong, on my part, if I were further to tax his time and energies to serve me. I am very pleased to take this opportunity of saying, in his presence, that he is fully worthy of the praise which has been bestowed upon him. It is an act of duty on my part towards my son to show you, gentlemen, my feelings towards him. There are various opportunities on which we may show each other attention in our path through life; and from our president, who has kindly acceded to my wish that he should take the chair, I have invariably received that kindness, attention, and respect which would make any man think well of him. Mr. Hamond has kindly devoted some time every year to look at my flock, and we have discussed their qualifications, the requirements of the public, and the duties which we, as ram-letters, owe to them. It is very possible, gentlemen, that you may think my Southdowns are a very large breed. Early in life I was called upon by the late Lord Leicester to attend to the selection of his sheep with Mr. Waltham, and I hope I have been some years advancing upon the knowledge I then gained. When the late Lord Leicester crossed his sheep with the Hampshire, and afterwards came to me, he was astonished to find so much more constitution and such quantities of meat in my breed. He had not always taken as his guide the wild animals, which fulfil the instinct implanted in them by a great and all-wise

Creator—that they should not couple with the inferior of their race, and thus perpetuate weakness of constitution, inability to breed, and, worse than all, inability to feed the population of this large country. Gentlemen, I am proud to see my friend Mr. Hugh Aylmer here. See what he has done! His sheep will not produce a race of pigmies. Again, the flock of my friend Mr. Clarke, from Lincolnshire, will not produce a race of pigmies. Seeing that the Southdown sheep must be increased to produce food for the population we have, I am sure Mr. Aylmer or Mr. Clarke does not require me as an apologist for the steps they have taken. I say exactly what they say; for we have chatted these matters over occasionally, and find our ideas assimilate. Gentlemen, I have persevered as long as my health permitted me to do so, and now I must retire. I am grateful for your attention and attendance here. You have paid me one of the highest compliments a man can receive from his brother-farmers; and I cannot express my feelings better than by saying, may God bless you all (loud cheers).

Mr. Jonas Webb proposed the health of the Chairman, than whom, he observed, it would be difficult to find a better specimen of a British agriculturist (cheers).

The Chairman returned thanks. Farming had been to him for many years a great and most interesting amusement; in fact, it had almost ceased to be an amusement, and had become a business, with which the more he had to do, the more deeply interested he felt. Farming comprised several operations, one of which was growing bread for the country. Another operation was growing meat; and those gentlemen who felt the importance of growing that useful addition to bread, called meat—without which bread would be an exceedingly dry business (laughter)—would no doubt take it in good part when he commended them especially to care and attention in breeding the different animals which they might keep upon their farms. The present occasion afforded a very good specimen of the results of careful breeding. They could now see size, constitution, and quality—strength to rear a lamb, and quality to make an early shearling: and now that farmers were obliged to take low profits, it was necessary that they should have quick returns. Having made these few observations, he begged to propose the health of the father of the profitable Southdown—a man than whom no one knew better how to put two animals together to produce a profitable third—a man who had drawn his materials from the Sussex downs, and brought them into the East of England—a man who had shown that he could breed sheep of good weight with superior quality—a man who had not only a Cambridgeshire, but a European reputation. He referred to Mr. Jonas Webb (cheers), whose rams had been extensively employed in producing the sheep they had seen during the morning, than which he had never seen a lot brought forward in better marketable condition.

Mr. Webb responded, and expressed his hope that Mr Overman's animals might meet with such a sale as their character and general quality and quantity combined deserved. It would not be his (Mr. Webb's) fault if some of them did not realize tolerable prices (laughter and applause).

The Chairman gave the health of Mr. Strafford, the auctioneer; and

Mr. Strafford, in replying, invited the company to proceed to business.

The heated atmosphere of the tent was accordingly exchanged as quickly as possible for the open air, and a goodly cluster was soon formed round the sale-ring. Mr. Strafford, in commencing business, said, their worthy chairman (Mr. Hamond) had taken the ground from under him, and the excellent remarks made on the subject of the flock left him but little to say about it. The stock spoke for themselves; and the brilliant company which he now saw before him satisfied him that their merits were fully appreciated. It was not often that such a flock was collected; in fact, it was the work of a life-time, and not a word in the remarks made by their excellent president had been over-stated. Mr. Overman was well known, and required no eulogiums. The flock, as the company were aware, had been bred by him for the last 40 years, and previously to that was a flock selected by his father in the county of Sussex, since crossed by rams from Mr. Webb's, Mr. Lugar's, and the best of his own breed. The sheep were to be sold without reserve, as Mr. Overman was desirous of retiring from the breeding of Southdowns. The company had now before them the experience of that gentleman's life, and he (Mr. Strafford) hoped it would be sufficiently appreciated to give him the fullest satisfaction, and that they would be all gratified with the day's proceedings, which would be conducted by the glass. This was the fairest way of selling, if they would only bid quickly. They would bid for the ewes at per head, while the rams would come singly, or as ram lambs; and he trusted that they would do justice to Mr. Overman, and reward him for his exertions.

The biddings then commenced. The first class called into the ring were the shearling ewes, which were sold as follows:—

Lot.		Guineas.	
1. Five shearling ewes		8½	Mr. T. Crisp.
2. Five	do.	4	Lord Sondes.
3. Five	do.	7	Mr. T. Crisp.
4. Five	do.	5	Mr. Southgate.
5. Ten	do.	5	— Thurnall.
6. Ten	do.	5	— Reid.
7. Ten	do.	6	— Hawkins.
8. Ten	do.	3	— Richardson.
9. Ten	do.	5	Sir W. Jones.
10. Ten	do.	3½	Mr. Syder.
11. Ten	do.	4	— George.
12. Ten	do.	3	— Syder.
13. Ten	do.	3½	— H. Bonner.
14. Ten	do.	3½	— Palmer.
15. Ten	do.	4	— Reid.
16. Ten	do.	3	— Bonner.
17. Ten	do.	3½	— Richardson.
18. Ten	do.	3½	— Syder.
19. Ten	do.	3½	— Syder.
20. Ten	do.	3	— Syder.
21. Ten	do.	2½	— Bonner.

FOUR-TOOTHED EWES.

22. Five four-toothed ewes (which won the first prize at Salisbury)		5½	Mr. T. Crisp.
23. Five ditto (which won the second prize at Salisbury)		5	— T. Crisp.
24. Five	do.	4½	— Hawkins.
25. Five	do.	5½	— T. Crisp.
26. Ten	do.	5	— T. Crisp.
27. Ten	do.	3	— Syder.
28. Ten	do.	4½	— Reid.
29. Ten	do.	3	— J. Webb.
30. Ten	do.	3½	— Hawkins.
31. Ten	do.	3½	Lord Dacre.
32. Seven	do.	3	Mr. Syder

SIX-TOOTHED OR FULL-MOUTHED EWES.

1.	Five six-tooth, or full-mouthed ewes	4¼	Mr. Reid.
2.	Five do.	3½	Lord Sondes.
3.	Five do.	3	Mr. Palmer.
4.	Five do.	3½	— J. Overman.
5.	Five do.	3	— J. Webb.
6.	Five do.	3	— J. Overman.
7.	Ten do.	3½	— J. Overman.
8.	Ten do.	3	— Lugar.
9.	Ten do.	3	— J. Overman.
10.	Ten do.	3½	— J. Overman.
11.	Ten do.	3	— Richardson.
12.	Ten do.	3	Lord Dacre.
13.	Ten do.	2½	Mr. J. Webb.
14.	Ten do.	2½	— Hawkins.
15.	Ten do.	2½	— Lugar.
16.	Ten do.	3	— Hawkius.
17.	Ten do.	2½	— Bonner.
18.	Ten do.	2½	— Raker.
19.	Ten do.	2	— R. Smith.
20.	Seven do.	2	— Dobito.
21.	Ten ditto (not good in the mouth)	2	— Dobito.
22.	Ten. do.	2	— Webb.
23.	Eight do.	2	— Fulcher.

EWE LAMBS.

		s.	d.	
1.	Ten ewe lambs	42	0	— Syder.
2.	Ten do.	55	0	— Syder.
3.	Ten do.	36	6	— Syder.
4.	Ten do.	32	6	— Syder.
5.	Ten do.	35	0	— Syder.
6.	Ten do.	32	6	— Richardson.
7.	Ten do.	32	6	— Hempson.
8.	Ten do.	30	0	— Lugar.
9.	Ten do.	35	0	— Hempson.
10.	Ten do.	32	6	— Brackenbury.
11.	Ten do.	32	6	— R. Leeds.
12.	Ten do.	30	0	— Lugar.
13.	Ten do.	32	6	— R. Leeds.
14.	Ten do.	30	0	— Paul.
15.	Ten do.	30	0	— Farrer.
16.	Ten do.	30	0	— R. Leeds.
17.	Ten do.	30	0	— Paul.
18.	Ten do.	30	0	— Paul.

SHEARLING RAMS.

Lot			
1.	Shearling ram, by a son of Mr. Webb's Perfection	26gs.	Lord Sondes.
2.	Do. do.	28	Mr. England.
3.	Do., by a son of Mr. Webb's Glo'ster	24	— Aylmer.
4.	Do., by Mr. H. Overman's No. 30	17	— F. Beck.
5.	Do. do.,	11	— J. Sewell,
6.	Do., by son of Mr. Webb's Perfection	10	— Hamond.
7.	Do. do.	12	— Coleman.
8.	Do. do.	8	— Bonner.
9.	Do. do.	9	— Flowerdew.
10.	Do. do.	20	— H. E. Blythe.
11.	Do., by a son of Mr. Webb's Glo'ster	11	— H. Aylmer.
12.	Do., by a son of Mr. Webb's Perfection	10	— Cooper.
13.	Do. do.	19	— Coleman.
14.	Do. do.	30	— Steadman.
15.	Do., by a ram of Mr. Webb's	16	— J. Everitt.
16.	Do., by a son of Mr. Perfection	21	— Jukes.
17.	Do. do.	8	— Cooper.
18.	Do. do.	12	— George.
19.	Do. do.	25	— Hamond.
20.	Do. do.	12	— Reid.
21.	Do., by a son of Mr. Webb's Glo'ster	8	—Sewell.

Lot TWO, THREE, AND FOUR-SHEAR RAMS.

22. Two-shear, by a ram of Mr. Lugar's, and commended at Salisbury, 24gs.—Lord Walsingham
23. Two-shear, purchased at Mr. Lugar's sale for 45 guineas when a lamb, 30gs.—Mr. Jukes.
24. Two-shear, by Mr. H. Overman's No. 31, 5gs.—Mr Cooper.
25. Two-shear, do., 10gs.—Lord Sondes.
26. Three-shear, winner of first prize at the Norfolk and Suffolk shows, and commended at Salisbury, 18gs.—Mr. J. Overman.
27. Three-shear, by Mr. Lugar's No. 17, won first prize at Norfolk show, 16gs.—Mr. J. Overman.
28. Three-shear, winner of prizes at Norfolk and Suffolk shows, and commended at Salisbury, 5gs.—Mr. Cooper.
29. Three-shear, commended at Norfolk Show, 12gs.—Mr. J. Gamble.
30. Three-shear, by a ram of Mr. H. Overman's, 11gs.—Mr. Hebgin.
31 Four-shear, by son of Mr. Webb's Perfection; has won six prizes, and is the sire of the first-prize ewe at Salisbury, 3½gs.—Mr. T. Crisp.
32. Two-shear, by Mr. Overman's No. 31, and sire of Lord Sondes' prize lambs at Norwich, 6½gs.—Mr. J. Bale.
33. Two-shear, of Mr. Lugar's blood, 14gs.—Mr. Newton.
34. Two-shear, purchased at Mr. Lugar's sale, 5½gs.—Mr. Crisp.
35. Two-shear, by Mr. Overman's No. 31, 5gs.—Mr. Sewell.
36. Two-shear, of Mr. Lugar's blood, 8gs.—Mr. Newton.
37. Two-shear do., 3gs.—Mr. Gamble.
38. Three-shear, by a ram of Mr. H. Overman's, 4½gs.—Mr Gamble.
39. Three-shear do., 2½gs.—Mr. Raker.
40. Four-shear, of Mr. Webb's blood, 6gs.—Mr. Royston.
41. Four-shear, by Mr. Lugar's commended Gloucester sheep, 3gs.—Mr. Gamble.
42. Four-shear, by a ram of Mr. Sexton's, 7gs.—Mr. Cook.
43. Four-shear, do., 3gs.—Mr. Gamble.

RAM LAMBS.

Lot			
1.	Ram lamb, by No. 26, dam a prize ewe	8gs.	Mr. George.
2.	Do. do., dam a prize ewe	2½	— Griggs.
3.	Do. do., do.	9	— George.
4.	Do., dam a Salisbury prize ewe	8½	— Everitt.
5.	Do.	4	Lord Sondes.
6.	Do.	3	Mr. Bullan.
7.	Do., by No. 29	4	— Cooper.
8.	Do., Mr. Lugar's blood dam prize ewe	4	— Cooper.
9.	Do., by No. 26	3½	— Cooper.
10.	Do., by No. 28	5	— Brackenbury.
11.	Do., by No. 26	3	— Griggs.
12.	Do., do.	6½	— England.
13.	Do., by do., dam a Salisbury prize ewe	2½	— Cooper.
14.	Do., Mr. Lugar's blood	2	— Claxton.
15.	Do., by No. 25, dam Salisbury prize ewe	9	— Everitt.
16.	Do., do.	2	— Griggs.
17.	Do., do.	3	— J. Freeman.
18.	Do., by No. 23	2	— Farley.
19.	Do., do.	5	— Bale.
20.	Do., do.	14	— England.
21.	Do., by No. 26	3	Lord Sondes.
22.	Do., by No. 28	2	Mr. Richardson.
23.	Do., do.	3½	— Bale.
24.	Pair ram lambs by No. 28, dam a prize ewe.	4	— Cooper.
25.	Ditto by No. 23	3	— Claxton.
26.	Ditto by No. 25	4½	— Royston.
27.	Ditto by No. 33	5½	Lord Sondes.
28.	Ditto ditto	4½	Mr. Flowerdew.
29.	Ditto by No. 13	3	— Claxton.
30.	Ditto by No. 33	4½	— H. Freeman.
31.	Ditto by No. 28	3	— Claxton.
32.	Ditto by No 29	2	— Claxton.

The activity or dulness of the competition will be seen from the prices realized. It may, however, be interesting to add a few particulars on this subject. Thus, among the shearling ewes, lot 1 advanced from 3 to 8½ gs., and lot 3 from 4 to 7 gs.; Mr. Crisp distancing all competitors in each case. For the four-toothed ewes, there was no very great advance made on the first biddings. In the next class—full-mouthed ewes, the most noticeable enhancement took place for lot 1, for which the biddings rose from 2½ to 4½ gs. For the ewe lambs half-crown biddings, calling for no particular notice, were made. The rams, of course, attracted a good deal of notice. For lot 1 in this class the first bid was 10 gs., and the ram was knocked down at 26 gs. Lot 2 started at 20 gs., and the glass ran out at 28 gs. Lot 3 mounted from 10 to 24 gs., lot 4 from 10 to 17 gs., lot 6 from 5 to 10 gs., lot 7 from 5 to 12 gs., lot 10 from 8 to 20 gs., lot 11 from 5 to 11 gs., lot 13 from 10 to 19 gs., lot 14 from 14 to 30 gs., lot 15 from 10 to 16 gs., lot 16 from 10 to 21 gs., lot 18 from 8 to 12 gs., lot 19 from 10 to 25 gs., lot 20 from 5 to 12 gs., and lot 21, the last in the class, from 5 gs. to 8 gs. For some of the two-shear, three-shear, and four-shear rams there was also a good competition. Thus, lot 22 started at 5 gs. and was sold at 24 gs., lot 23 mounted from 10 gs. to 30 gs., lot 25 from 5 gs. to 10 gs., lot 26 from 5 gs. to 18 gs., lot 27 from 5 gs. to 16 gs., lot 29 from 5 gs. to 12 gs., lot 30 from 2½ gs. to 11 gs., lot 33 from 3 gs. to 14 gs., lot 36 from 3 gs. to 8 gs., &c. Only one of the ram lambs, it will be seen, exceeded 10 gs., although two or three others very nearly reached that amount. It was rather amusing to notice the difficulty occasionally experienced in starting a bid, and the activity with which the competition, once commenced, continued. In fact, to use an expression of Mr. Strafford, the company sometimes evinced a tendency to "dwell" rather too much upon the lot in the ring. It ought to be stated that some of the parties whose names appear as buyers, purchased on commission; but as private arrangements do not fall within the province of this or any other journal, the name announced by the auctioneer is appended in each case.

The sale was brought to a close about 6 o'clock, the rain through which Mr. Strafford perseveringly plied his avocation having somewhat protracted the proceedings, and caused some annoyance to those unprovided with umbrellas.

GRAIN SECURING.

Sir,—The rapid progress made during these late years in the art of agriculture has afforded rich matter of thought and interest to the observer, an exhaustless topic of discussion to the orator and penny-a-liner, and the furtherance of which has engaged the attention and time of many, eminent for their practical and scientifical attainments.

I willingly accord honour to whom honour is due; and no doubt farmers in general have reason to be grateful to those shining lights, who, by their researches from time to time, have thrown a halo over their hitherto bewildered and darkened path. Yet, is it not possible that, while labouring to bring out something grand and startling, a something wherewith their names may descend to posterity in association with the improvements of agriculture, and as its benefactors—is it not possible that, while pursuing the fanciful and the shadowy, they may miss their way and lose the reality, and that common things, things of apparently little amount to the unconcerned spectator, and the true value of which is only known to the man who has a certain amount of £ s. d. to make good against a certain day, are lost sight of, or at least thrown into the background?

I have been led thus to write while at this present time experiencing the great expense, anxiety, and care attendant on the unsatisfactory method of securing the newly-stacked grain from the effects of the weather.

It may not be necessary to specify all the inconveniences there are in the common mode of thatching. To practical men they are too well known; but as I intend to give a rough sketch of what I consider would go far to remedy many of them, it may be as well, for the sake of comparison, to point out at least the annual expense of securing a given number of stacks. Corn-stacks in this neighbourhood, as in many others, are generally made in a circular form, an average size being 15 feet diameter at the bottom. The thatching of one such stack is considered a day's work for a man. Harvest-wages range from 4s. per day upwards, and with beer, &c., say 4s. 6d. per day; preparing the straw, pins, purchase of twine, &c., will put at least other 2s. expense on the stack; in the whole the securing of one such stack stands to the sum of 6s. 6d. Further to illustrate my views, suppose the stacks are all built contiguous to the thrashing-mill, what is the expense of taking down and conveying to the barn? This requires one man to fork off the stack, one to load, one to unload, and another in the barn to take in, and two horses for the carts; with which force one of the aforementioned stacks may be got-in in a half day, at an expense of 8s.; making, with the thatching, 14s. 6d. per stack. Where 100 acres of corn are grown we may calculate on having 40 such stacks, and the cost of securing and conveying to the thrashing-mill would amount to £29—no inconsiderable sum for such simple operations; and were the inconvenience to end with the cost, the system might not seem so very intolerable. But who has not in the middle of the night been awakened with the roaring of the wind and the beating of the rain? and if by any inadvertence his thatching has not proceeded simultaneously with his stacking, what are his feelings? Not of the most agreeable description I know, and best known to those who have experienced them. Again, imagine some coarse stormy day, when to venture out-doors with either men or horses is out of the question. Who has not wished that he could at once remove one of his ricks from the yard to his barn, dry and without taking to pieces? or that he could thrash, and so keep all at work and all comfortable?

This latter inconvenience we have seen remedied on the farm of J. B. Faviell, Esq., near Wetherby, who has a line of rails from his barn to his ricks. The ricks he builds on a frame placed on four wheels; and when he wants to thrash, he puts-to a horse, and drags an entire stack right to his feeding-board, where under cover, in any weather, he can proceed. I fancied, however, there was a defect in Mr. Faviell's arrangement which might lead to inconvenience. Instead of one line of rails I should propose having two, but merging into one before coming to the barn. On one line could be placed whatever was the preponderating crop of the farm; the other to be filled with the other sorts of grain. On both lines I should have "sidings," which Mr. F. has not, so that if necessary any stack or stacks could be shunted and allow others to be got out. An opening should be made in the barn, wide enough and high enough to allow the stacks to be drawn under cover and close to the feeding-board.

For a permanent cover, erect above the two lines of rails a gable roof covered with tiles, and supported on larch or oak poles, or what might be preferable, cast-iron pillars. At the further ends of the rails leave as much uncovered as would suffice to build the stacks, which when finished could be run under cover.

There should also be a break in the roof at the "sidings," both for the purpose of building and also to admit of "shunting." Here then we have a plan capable of overcoming the difficulties and anxieties we noticed above, capable of supplying immediate security, and affording the means of work in weather when out-door work cannot be done.

The only question is the expense of such construction; and without going into detail, I estimate the cost of rails and shedding to cover 100 acres of corn at a sum not exceeding 350*l.* The annual expense as before calculated amounts to 29*l.* The interest of 350*l.* at 5*l.* per cent. would be 17*l.* 10s., leaving an ample margin of saving, besides the convenience, well worth twice the amount.

If you can find space for my hasty sketch, it may provoke discussion and bring out others with something better and cheaper, and thereby all your readers may gain.

I am, yours, &c.,

Forest Farm, Wetherby. WM. J. MOSCROP.

THE NATIONAL IMPORTANCE OF ENCOURAGING THE BREED OF RIDING HORSES.

For some years now we have been whipping up what was wont to be a very neglected feature in the proceedings of our agricultural associations. There might be better and better shows of cattle, sheep, and pigs. The exhibition of implements may have expanded into a size and importance scarcely ever contemplated. We may have even condescended to encourage such small game as ducks and chickens; but we were very much inclined to pass over, as beyond our attention, an animal which all the rest of the world is ever ready to give us especial credit for. Four or five seasons since, the Royal Agricultural Society of England had entirely ignored the existence of such a thing as a well-bred horse, and it was only by some very cautious advances that the council could be brought to at all admit the fact. They were good enough in the first instance to allow local committees to offer extra premiums for his appearance amongst them. By degrees they went almost so far as to suggest that if a district had any money to spend, it might as well be applied to such an object. Eventually, they have once more taken him directly under their countenance, and the prize sheet now officially declares that a farmer may breed a hunter, a hack, or a harness horse. Other meetings have followed this example, while it was the success of the Yorkshire and one or two more that must have gone far to set it in those high places we by this take our line from. At any rate, there is scarcely an association of any influence but offers some direct encouragement for the breeding of a good sort of horse. The Irish, even in a year or two, has comparatively worked wonders in this way, and the only grand exception we remember at the moment is the Highland Society. Some one, however, is sure to push in here a thorough-bred or two as extra stock, a hint that should not be given in vain. There is no possible reason why our Scotch friends should not relieve their lines of Clydesdales with something Lord Eglinton might have bred, or Lord Elcho make an offer for.

Let us look into the matter a little closer, and at the same time let us remember, as we have already said, how willing the rest of the world is to allow us a superiority in this respect. Above all, let us duly estimate the effect of crying up, rather than depreciating by neglect, our own wares. The Royal Agricultural Society pronounced there were certain breeds of animals to be made much of, and they gave prizes accordingly for Shorthorn cattle and Southdown sheep. The impression created by such a course has never been removed, while it is nearly altogether without limit in its influence. Man and beast, who would never have been heard of under other circumstances, have a world-wide repute as the winners of premiums at these meetings. There is, in fact, no other such advertisement for a breeder or an animal. "Master Butterfly" would never have reached twelve hundred guineas, had he never taken a first prize at a national show; while Mr. Webb's rams would scarcely have gone off at over a hundred guineas a hiring, had he always pursued his present doubtful policy, and declined to exhibit them. The Continent, America, and the Colonies will always be amongst our best customers, and they will always be guided, more or less, in what they should have, and where to go for it, by our list of the awards. And we really do not see that they could have any better reference.

But why should we not do for the horse that we do for our cattle? How could a body of Englishmen—of country gentlemen more especially—ever dare to pass him over, and complacently declare they have nothing to do with him? It was the horse that first opened the foreign market to us; and it is for him still they come. They want thorough-bred horses for Counts to ride; they must have Cleveland bays for grand Duchesses to drive. Napoleon will so mount the pick of his Cavalry; while one of the first luxuries of our thriving cousin in Melbourne or Adelaide is a smart nag to follow the Kangaroo-hounds with, or to out-trot some Yankee clipper on. It would take a long time to convince us that any Englishman with the opportunity should not rear a good colt too, or that our national societies should not offer him the inducement to do so.

Even strictly considered as a *national* institution, it should be a duty to look to this. We are now actually in want of serviceable horses for our own troops in India. A blue-book just issued points to the Cape of Good Hope as affording the means for supplying our need. But strong, active, and hardy as the Cape horse is, he will never do without a cross of the English. No man, perhaps, has ever had so much experience in this way as the remount-agent, Colonel Apperley, and certainly no one could have been better bred for the appointment, being, as he is, a son of the celebrated "Nimrod," the author of so many able treatises on the breeding and management of horses. A letter from Colonel Apperley acts as a kind of preface to an otherwise by no means dry or uninteresting compilation, and it is from his communication we take the following, as peculiarly applicable to our purpose. Here is the Cape horse as he is:—"If you ask a farmer how far he is going, he replies only eight or ten hours, which journey will average nearly seven miles an hour, the only refreshment being an occasional drink of water, and a roll in the sand, which is supposed to make Cape horses quite fresh again. This is no over-drawn character of the animal, and I mention it first as I consider good bottom the great quality in horse-flesh . . . . Good legs and feet, plenty of bone below the knee, depth of chest, with well-placed shoulders, great substance and broad hips, sound wind and eyes, with generally good action and temper, form the remaining good points possessed by the Cape horse, to an extent hardly known elsewhere, to which may be added a wonderful soundness of constitution." This is no bad character for the sort of servant a trooper wants; but let us go a little further, and see how it has been acquired:—"The Cape colonists," then, "can never sufficiently express their gratitude to the late Lord Charles Somerset and the present Mr. T. B. Bayley. It is to *the valuable English blood* imported by these gentlemen that the Cape horses date their excellence, and the *farmer dates his prosperity*. He now trots his produce to market behind eight well-bred horses, instead of the old slow and cumbrous span of eighteen pair of oxen."

The Colonel, like most good judges, "will not have" the Arabian, and he thus concludes one of the best-considered letters we ever read—one in every way worthy of his distinguished father:—"If the Cape gentlemen will accept my humble advice, I hope they will continue to *breed from as much good English blood and bone* as their money will procure, and cross their mares that have Arab blood with the best sort of Norfolk, trotting, or Cleveland stallions procurable. No other cross will restore size and substance from that description of mare."

There is something very suggestive in all this. Is the Cape farmer the only one who is to date something of his prosperity to the excellence of his horses? Is a superiority so marked and telling to be slighted only by those who possess it? It is not the Cape only that will continue to breed from "good English blood and bone." It is not there merely that Norfolks and Clevelands will be prized. But we may *prize* them a little more ourselves. Let it be known that we do really care as much for a good horse as for a good beast, or a good pig; and let our customers learn where and to whom to go. *The Mark Lane Express* may occasionally have been a little "horsey" in its tone, but it has done good service if it has found a becoming place at our agricultural meetings for a well-bred one. He should surely be at home there.

THE NORTHEND BEET-ROOT DISTILLERY AT FULHAM.

The subject of Agricultural Distilleries is beginning to attract the attention of the British farmers. Throughout the Continent the system has obtained an extensive development, and, so far at least as the pecuniary part of the question is concerned, has been very successful with the landed interest, who have consequently reason to be satisfied with the result. Whether the same system would be equally successful in this country is another matter, involving questions which belong peculiarly to British agriculture, and do not affect that of the Continent. There are also other points connected with it which the Continental landholders and owners would not take into account, although eventually they will feel the effects equally with ourselves. Having been invited to inspect the Northend Beet-root Distillery at Fulham, recently established, and which is worked on the principle adopted by M. Champonnois, we embrace the opportunity of stating our views both in regard to the commercial part of the question, and also to the moral and social effect a general extension of the system would have upon the rural population.

The Northend Distillery is fitted up on the principle adopted by M. Champonnois, the processes of which differ from those commonly practised in several particulars, the most important of which are—first, in extracting the alcohol, not from the expressed juice as recommended by Dubrunfaut, nor from the mashed root as adopted by Leplay; but from a wort or extract drawn from the mashed roots in the same way as wort is extracted from malt in brewing beer—secondly, in using the *vinasse* or liquor remaining in the still after the alcohol is extracted, in the maceration of fresh roots. This is conveyed by pipes back again to the vats or mash tubs, in a hot state, which effects a considerable economy of fuel. A small portion of sulphuric acid is used in the maceration of the roots, which facilitates the extraction of the saccharine; and the wort, after being drawn off from the mashed roots into another set of vats, is fermented with yeast, which converts it into wine; after this it is ready for the still, by which the spirit is extracted.

The quantity of proof alcohol obtained depends, we believe, on the season of the year, it having been ascertained that the beet-root yields more saccharine, the basis of alcohol, in the winter months than in either the autumn or spring. M. Champonnois in his statement shows it to vary from 13.50 to 18.25 gallons to the ton of roots, or from 3.13 to 4.64 per cent. The quantity yielded is also affected by climate, being less in a low than in a high latitude. The pulp or residue, which is valuable for feeding cattle, sheep, and pigs, amounts to from 70 to 80 per cent., and is sold at 10s. or 12s. per ton, being considered quite equal in value, if not superior, to the raw beet-root, taking weight for weight.

With regard to the quality of the spirit extracted, M. Champonnois has not yet, any more than his predecessors, found means of divesting it of the flavour of the beet-root, which must prove a serious objection when the spirit is brought into competition with that distilled from grain. If this, in future, cannot be overcome, it will of itself form a serious drawback on the value of the article, which could never come into the market upon equal terms with malt spirit from grain.

There can be no doubt that M. Champonnois's process of distilling is far superior to any previously in use; and the best proof of this is, that there are already in France 200 distilleries working upon it, and the testimony of many eminent men, both scientific and practical, is most decidedly in its favour. Whilst, therefore, the French agriculturists find it to their interest, in a pecuniary point of view, to multiply their establishments, it becomes a question of importance how far the same system would be advantageous to the agricultural interests of the United Kingdom.

There are three points of view in which we are led to look at this question in order to arrive at a just and impartial judgment. First, what effect would the change from a purely agricultural to a semi-commercial character have upon the British farmer generally? Secondly, would the profit accruing from the system indemnify the farmer for the changes in the mode of agriculture now practised, that would necessarily ensue from its adoption? And thirdly, would any amount of immediate profit from it be an adequate equivalent for the destructive moral and social effects of deluging the country, by means of distilleries, with ardent spirits, when the people are already too much addicted to their use?

First, with respect to the commercial spirit and character the system would impart to the British farmers, we firmly believe it would be injurious if not destructive to that spirit of enterprise for which they are now so distinguished, and that it would materially interfere with those grand improvements now in process of maturing in this country, and which require both the entire capital and the undivided attention of the body of agriculturists. Far from having reached the summit of perfection either in the application of machinery or in the amount of production, we are looking for the reduction of the expenses of the farm, on the one hand, to half their present amount, and on the other, to an illimitable increase in the productive powers of the soil by the application of science. These things will demand, we say, the undivided attention of the British farmer, whose position is widely different from that of the Continental farmer, who is cramped as well by want of capital as by fiscal regulations, and the absence of that civil and political freedom, which is the very soul of enterprise.

We could enlarge upon this subject, but want of room compels us to come to the second question, which is purely commercial; and notwithstanding the flattering prospects of gain from the system, held out by the projectors, we do not believe that any amount of profit upon the distillation of beetroot, as an appendage to the farm, would be sufficient to indemnify the farmer for the injury that would accrue from the withdrawal of capital from the land, the division of the time and attention between the two incongruous objects, and the changes in the common routine of the farm, that would necessarily take place. We would warn the farmer, too, that should the system become general it would so reduce the price of spirits as to render it wholly unprofitable; and we feel convinced that before many years would elapse, the greater part of the distilleries would be shut up, unless (which would be a still greater evil) consumption of spirit should be so much increased as to keep pace with the production, which the adoption of the system to the extent M. Champonnois contemplates would involve.

The third question is wholly of a moral and social nature; but we view it as the most important of all. We have only to look at the deleterious effect of the use of ardent spirits at present, in this country, and especially in our large towns, to form some faint judgment of what would ensue from the establishment of one or more distilleries in every parish in the kingdom. We have the testimony of almost every judge and magistrate in the country that the vice of drinking is the direct cause of at least three-fourths of the crimes that are committed; and that, if a reformation in this respect could be effected, the prisons and police courts would be shut up. What then would be the effect upon the moral and social condition of the rural populations by the extension of the system urged upon us by M. Champonnois? We can answer this question by a reference to the condition of Austria, where the system *has* been carried out by the landed interest, and where 16,000 *distilleries* are now at work. An eyewitness assures us that the temptations and facilities afforded by the diffusion of these establishments over the country have produced the most alarming consequences upon the entire rural population: "*As for the moral and physical effects of this immoderate use of spirits, they speak for themselves, and Galicia affords an example of these, that deserves to be studied, having been fully exposed and brought to light in the publications of temperance societies, which have undertaken to contend against the immoderate use of alcoholic drinks.*"*

This testimony is from a Frenchman, when speaking in favour of the system as a source of revenue to the landowner. It is impossible to separate the *cause* from the *effect;* for unless the consumption of spirits increases in proportion to the production, the system would prove a failure; and the consumption cannot increase without involving the consequences we deprecate, exactly in proportion to the extent to which the system is carried out. C.

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* Eugène Marie.

THE APPLE—ITS CULTURE AND USES.

Of the various fruits with which we are favoured, apples are the most abundant and cheapest, and yet, perhaps, the least appreciated, and receive the smallest amount of attention as regards improvement or extended home culture. Some few of the western counties possess, indeed, extensive orchards, and a few fine varieties for the table are raised by our fruit growers; but we have no pomological conventions like the United States, nor is the fruit grown in anything like the quantity which the demand warrants. And yet the apple has been well termed the world-renowned fruit of temperate climates. It figures in history, in poetry, and in the ancient mythologies as a fruit of wonderful virtues. The allegorical tree of knowledge bore apples; and the celebrated golden fruit of the orchards of Hesperus, guarded by the sleepless dragon, which it was one of the triumphs of Hercules to slay, were also apples, according to the old legends. It was simply the award of an apple to the Goddess of Beauty that led to the great Trojan war, and its yet more famous chronicle. We read, too, of apples which were believed to possess the power of conferring immortality, and which were jealously watched over by the goddess Iduna. The falling of an apple in the presence of the great Newton led to the discovery of the law of gravitation; and the price of the same fruit in the markets of Paris, compared with its cost in the provinces where it is produced, awakened the thoughtful Fourier to a sense of the subversive character of civilized commerce, and resulted in the final discovery of his grand social science. Thus the history of the apple is closely interwoven throughout with the history of the human race.

As a market fruit and source of profit, nothing requiring so little care will produce so great return; and so well is this appreciated in America, that many sections of the United States are becoming more a fruit or apple-growing country than of repute in the growth of any other product. Besides about 50,000 bushels of apples which they ship to this country, immense quantities are sent to different large cities of the Union, and even as far a-field as California, to which from 15,000 to 20,000 barrels of dried apples are shipped. For long keeping or shipment as fresh apples, a fruit has to be selected possessed of two distinct qualities—namely, endurance from decay, and retention of flavour. It is the winter description of apples, therefore, that are most esteemed in America, because they can be more safely shipped to distant markets, make far better cider and dried fruit, and are more valuable for family use. They will fetch about a dollar or a dollar-and-a-half a bushel, but the price of course varies with the crop. Long-keeping apples may be sent safely from America to any part of Europe, and they are found to pay better than wheat. The United States growers have certainly paid more attention to their orchards and apples than we have; and their best varieties, numbering about two thousand, comprise many quite unknown here. It is true they have a larger range of climate and soil to work upon, and land is also cheaper, than it is here, so that fruit orchards may be indefinitely extended. It is well known that sweet apples are excellent for feeding pigs, and even horses and cattle; mild sub-acid apples, too, are found to be very good for this purpose, but then we cannot obtain them here in sufficient quantity for feeding cattle, for our home production does not keep pace with our town demands. We imported in 1856 537,274 bushels of raw apples, chiefly from the Continent, and upwards of 2,000 bushels dried. But we do not use half so much of this fruit as an article of food for ourselves as we ought. Apple dumplings, apple fritters, and apple-sauce do occasionally appear at our boards, and the apple holds its place as an esteemed dessert fruit; but we should like to see it more generally grown, so that we might be less dependent for supplies on our neighbours across the Channel. Some think stewed apples more wholesome and better flavoured than preserves; and hence arises, probably, the demand for Normandy pippins.

The apple in its various preparations for the table is both nutritious and wholesome; and more attention ought to be paid to our fruit orchards, which, though exceedingly profitable, are usually looked upon as a very subsidiary affair.

The apple is not so much influenced by soil and climate as the pear, still several varieties are affected by these to a considerable extent; some thriving best in a warm sandy soil, others in a rich heavy soil, while some prove equally good on almost any land. A fair average product of an acre of orchard, in good bearing condition, may be stated at from 200 to 300 bushels of apples a year. Swine fattened on apples have been found to attain good weights, and the pork was solid and of excellent quality. A peck of apples fed to a cow has been found to add more than a quart to the daily quantity of milk, besides greatly increasing its richness and improving the condition of the cow. The effect of apples is equally favourable on other stock. Horses fatten on them, and their coats assume a brilliancy which hardly any other food will give them.

Dr. Salisbury (Trans. N. Y. State Agric. Soc., 1849) examined chemically the composition of the apple, to determine whether or not it contained a sufficient percentage of nutritious matter to render it profitable as food for stock. The result of his analyses of several kinds of apples showed that in 1,000lbs. weight of fresh apples there were 827lbs. of water, 170.4lbs. of organic matter destroyed by heat, and 2.6lbs. of inorganic matter or ash. 1,000lbs. of dry apples contain between 17 and 18lbs. of ash. The per-centage of inorganic matter in the apple is therefore small, not much exceeding that of the richer grains.

The ripe apple is rich in sugar and a body analogous to gum, dextrine. In the dry apple, 100lbs. will contain about 19lbs. of fibre, 1.1lb. of water, fat, and wax, 18.7lbs. of dextrine, 49·8lbs. of sugar and extract, 2lbs. of malic acid, 8·4lbs. of albumen, and 1lb. of casein.

In the fresh apple the relative per-centages are about 3.2lbs. of fibre, 0.2 of a pound of gluten, fat, and wax, 3.1lb. of dextrine, 8.3lbs. of sugar and extract, 0.3 of a pound of malic acid, 1.4lbs. of albumen, 0.16 of a pound of casein, and 82.66lbs. of water. The apple is richer in nitrogenous compounds than the potato; and relatively viewed in its chemical composition, may be regarded as richer than the latter in those bodies which strictly go to nourish the system, or, in other words, to form muscle, brain, nerve, and, in short, assist in building up and sustaining the organic part of all the tissues of the animal body. This will account for the fact of the Cornish labourers, in a year of scarcity in the commencement of the century, asserting that they could stand their work on baked apples without meat, whereas a potato diet necessitated some animal food with it. Apples are much more extensively used as food on the Continent than with us.

The fermented juice of the apple contains much of the nutritive matter of the fruit; but the arguments of some of our recent correspondents, as to the policy of doing away with the use of cider at harvest-time, may receive additional force if it can be shown that it is more profitable for man and beast to convert apples into fat instead of alcohol.

THE BREEDING AND MANAGEMENT OF SHORTHORN STOCK.

BY A PRACTICAL MAN.

At the present time, when the breeding of Shorthorns is greatly on the increase, little apology is required for the remarks on their treatment which we are about to offer. I shall not enter into any inquiry as to the source or origin of this breed of cattle; suffice it to say that at the time I write, Shorthorns are justly recognized as the best pure breed of cattle in the United Kingdom, and command the most money at our public and private sales. Indeed the breeding of Shorthorns is not confined to farmers who breed them for profit, nor to noblemen and gentlemen who breed them for pleasure, or for exhibition at our national shows: it takes a place in our great commercial system, and has become a commercial pursuit. The demand for first-class animals to export to the United States of America, to Australia, and to all parts of Europe has exceeded the supply, and resident agents of our transatlantic breeders are always ready to purchase good Shorthorns for future shipment. Special accommodation is provided on board the steamers and ships which carry these valuable animals. Captains are preferred who take an interest in the preservation of animal tribes; and such is the extent and variety of some cargoes of live stock now sent abroad, that the vessel may not inappropriately be styled a "Noah's Ark."

In several parts of England, but more particularly in the North, calves are allowed to run with their dams, and suck at pleasure; care being taken that the dam has a sufficient supply of milk for the calf, and that the udder is sucked out clean, or drawn, once a day, to prevent disease. Calves will thus run with their dams six to eight months, and some are only taken away when the cows require drying previous to calving: by this time the calves have gradually weaned themselves. My objections to cows suckling their own calves are, that the cow is not so likely to come in season whilst the calf runs with her, and time is lost in breeding; that if the cow's milk should fail, it is difficult to wean the calf from her, after it has sucked eight or ten weeks, or induce it to suck another cow; and that in the winter months the majority of homesteads have not the requisite accommodation for cows and calves to lie together in shelter. Neither do cows take kindly to be milked by hand, after calves have run with and sucked them. The system I adopt and prefer is, to take the calf from the cow when it is three days old, put it in a warm and well-littered pen, and teach it to drink from the pail, giving it new milk direct from the cow twice a day. In two or three days the calf will learn to drink, the cowman carefully holding the pail to its head, with his fingers in the calf's mouth; and if it keeps in health, there is no further trouble in the matter. The calf should be fed at the same hour morning and evening, as nearly as possible, say 5 a.m. and 5 p.m.; and if two or more calves lie together, they should be tied up separately for an hour after being fed, or they will contract the habit of sucking each other, which is apt to produce flatulency and skin diseases, and renders them dirty in appearance. Should the calf be the first produce of a heifer, I let it suck her for ten or twelve days, and then remove it, as I think the heifer allows her milk to come more freely after being sucked for a few days, and there is less risk of disease in the udder. In the spring of 1856, a favourite cow calved five weeks before her time: the calf was small and weak, and unable to stand or to suck its dam. However, I procured an infant's feeding bottle, with india-rubber nipple, and directed the cowman to feed the calf with new milk by means of this bottle, giving it a small quantity every two hours for the first three days, increasing the intervals of feeding as the calf gained strength. The cowman or his mate sat up several nights to feed the calf, and in three weeks we were able to dispense with the bottle, and had the satisfaction of seeing the calf drink from the pail. At fourteen months old this calf was sold by auction for more than 90 guineas. The bottle used was a glass one, and care should be taken to keep it sweet. Another case was similarly treated, and with equal success, so far as rearing the calf until it was a month old. Being winter, for the sake of warmth I let the calf lie with its dam, which had uncut hay in her manger. Finding the calf dead one morning, when it had been seen alive and sucking late at night, we carefully examined it, and detected a ball of hay lodged in the throat. I have no doubt the calf had eaten the hay, and having fallen asleep before it had passed the food into its paunch, the hay had suffocated it. When calves are born before their time, they sleep a great deal, and are only roused by cold or want of food. Calves cannot be too well littered, and their pens should be sheltered and warm, with good ventilation *above.* The floor of the calf's pen should be on an incline, to allow the urine to drain away, and the hot dung should be thrown out of the pen at least three times a week, and in confined places daily. At four months old the calf is gradually weaned from new milk by adding scalded linseed, which has been previously ground, beginning with a pint at each meal, and increasing the linseed until the milk is entirely withdrawn. The calf will drink linseed freely; and if the season is winter, it will be desirable to continue feeding with it until the calf is turned-out to grass in May or June. I give a simple mode of preparing linseed tea for calves. One-and-a-half lb. of linseed will make five gallons of tea. To one-and-a-half lb. of ground linseed add a gallon of *hot* water—not boiling. In cold weather let it stand twenty-four hours, in warm weather twelve hours. Then add four gallons of water, and give it to the calves at the temperature and about the consistency of new milk. A six months' calf will drink six gallons per day, given at twice. When four months old the calf should have a little sweet hay cut into chaff, and a handful of ground oats mixed with it; also a few slices of swede turnips, or, if *after February*, a few slices of wurtzel daily. The proportions of food may, of course, be increased with the growth and condition of the calf; but the increase of turnips or wurtzel should be very gradual, and not exceed one gallon per day up to eight months old, nor one peck per day up to twelve months. When calves are first turned-out to grass I think it desirable to house them at night, give them hay, and two lbs. of linseed-cake per day. Nor would I withdraw the cake after the calves remain out at night, as I find it keeps young stock in health, and their skins and coats in a fresh and blooming condition. Many writers advocate the use of pea-meal made into porridge for calves, and pea and bean-meal, mixed with chaff, for yearlings. I have no wish to detract from the value of peas and beans as fattening food, but my experience proves that they are not proper food for young stock, more particularly for young *breeding* stock. I have little doubt that many cases of sudden indigestion and consequent inflammation, of "hoven," of diseased knees and joints, and stiff fore-legs, are the fruits of indulging young stock with peas or beans in some form or other. Oatmeal may be largely given without fear of the consequences, and if the animal does not progress so rapidly as you wish, you will have the satisfaction of retiring to rest at night under no apprehension of finding your favourite shorthorn "blown-up" and "a body" in the morning.

I have a decided objection to young stock being tied up during the winter. If possible, five or six yearling heifers should lie loose, in a warm and well-drained yard, with a roomy shed to feed in, and to shelter them from heavy rains and storms. Half-a-bushel of cut swedes, with sweet oat straw and hay mixed and cut into chaff, and from two to three lbs. of linseed-cake per day, will keep the heifers in a fresh and thriving state. If hay is plentiful, the straw should not exceed one-third in proportion. If hay is scarce, and straw abundant, a little ground oats might be mixed with the chaff, and the hay and straw cut up in equal portions. Food should never be given in excess, and stock should clear out their mangers before they have a fresh supply. Should one of the heifers drive the others from the manger, and monopolize the oil-cake, the lot may be tied up, for half-an-hour, to ensure each animal having its share. The heifers should have the dirt cleaned off them daily; for if allowed to accumulate, the dirt adheres to the hair, which is eventually scraped off the animal, rendering her hind-quarters as bare of hair as a clipped horse. The growth of long and silky hair, and the *preservation of it*, is a peculiar art in the "getting up" of shorthorns for our national shows, and taxes the skill of first-class exhibitors to the utmost. Lice are frequently to be found on heifers at this age, and the stock should now and then be carefully examined, and the vermin destroyed. It is an error to suppose that lice are only found on animals which are poor and dirty. That cattle are more liable to vermin, and to diseases of the skin, when in a dirty and starved condition, I allow; but I have frequently found lice on heifers which have never known the cravings of hunger, and which have been kept as clean and sweet as carriage horses. The best application to destroy lice is a strong decoction of tobacco-water, boiling the rankest tobacco you can procure. To one lb. of tobacco add eight gallons of water; boil and stir it; when a little cool pour in one pint of brown spirits of tar and one lb. of soft-soap; stir all well up, and apply it when cool. Let a man effectually rub this mixture into the heifer's skin, more particularly on the neck, shoulders, and rump ends, which are the parts usually infected by lice. The heifer should be kept in a shed until she is dry, and the mixture must not be washed off. A rub with a soft brush, or wisp of straw, the following day, will restore the natural appearance of the coat, and the disagreeable smell soon passes away. Mild mercurial ointment can be applied in bad cases to destroy lice, but the ointment irritates the skin, and causes the hair to come off, so that I prefer the tobacco mixture, even if two dressings are necessary. The horns of heifers between one and two years old also require attention. If they are not growing so kindly as is desired, let them be well filed on the *inner* side towards the forehead, and repeat the filing every two or three months. If the horns are long, saw off the tip ends, and file the points into shape. I object to the use of steel screws to horns, and giving them a turn daily to bring the horns forward, as they are rendered thick towards the root by this process, and a *thick* horn is more objectionable than a wide horn, or one that turns backwards. When the weather is at all favourable, the heifers should be turned into a sound pasture for a few hours during the day. A cold bracing north wind will not hurt them, but I should avoid exposing them to a biting east wind, or to a cold rain. Heifers exceeding twelve months old will be coming "in season" usually every three weeks; and they should be removed from their fellows, and shut in a loose box till they are quiet, or a broken horn or slipped hip may be the result. Some breeders put their heifers to the bull at 15 months old, others at 20 months, and others not sooner than two years old. If a heifer is strong and healthy, I prefer serving her at the age of 20 months, provided she would be down calving at a favourable time of the year. It is desirable she should calve in May, or early in June, as the heifer then has the advantage of a summer's run at grass, and the season of year is most favourable for cow and calf. July and August are objectionable months for heifers to calve in, owing to the heat which usually prevails, and the greater tendency to inflammation after calving. For this reason, I should let a 20 months' heifer pass for two months before I put her to the bull, rather than she should calve in the hot weather. A heifer served at 15 months is liable to be checked in her growth, and frequently proves a mean little cow; a heifer served at 20 months old is more likely to stand to her bulling, and to be a regular breeder afterwards, than one which is two years old before she is bulled, and with good keep the growth of the former is not checked. The two years old heifer will be getting fat, if well bred, and frequently is very troublesome to get to breed. Of the means to be employed to ensure a heifer being in-calf, I will speak presently. A cow usually goes 280 days, or 40 weeks, with calf. Should she exceed this time, she generally produces a bull calf. Assuming, then, that our heifer, 20 months old, is served and in-calf on the 1st of August, she will be due to calve on the 9th of May following; and if all goes on well, she will keep her time within three or four days under or over that date. A "calving-table" is given annually in that useful work, "Johnson and Shaw's Farmer's Almanac"; the calculations are made for forty weeks, and a reference to this table will save time in calculating dates. After the heifer has calved six weeks, if she is healthy and strong, she may again be put to the bull; and as soon as it is ascertained that she is *in-calf*, which will most probably be the case if she passes six weeks after being served without coming in season, I should advise her being gradually dried of milk, and put the calf to nurse. This will give the heifer a good rest, and by the time she is again down calving will have recovered her condition, and grown into a fine cow. But the heifer should not be dried until it is ascertained as correctly as possible that she is safe in-calf, as a heifer so dried is very difficult to be afterwards got with calf.

Similar shelter and yard-room to that suggested for yearlings is also desirable for heifers in-calf. From three to six can lie together, according to the size of the yard and shed; but they should have room to move about freely. If such yards with open sheds do not exist, the heifers should lie in separate boxes at night, and be turned into a foldyard or paddock during the day. A mixture of hay and sweet barley or oat straw cut into chaff, from half a bushel to a bushel of sliced swedes, given at twice, and 3lbs. of linseed cake per day, is my usual winter food for heifers in-calf.

The linseed cake can be entirely withdrawn when the heifer is within three months of calving, if she is in good condition, and has a tendency to lay-on flesh; but if otherwise, this moderate quantity of oilcake will help to keep her bowels open, and her body healthy, without making her gross. I should prefer reducing her supply of dry food, and mixing brewer's grains with the chaff, to taking off the oilcake altogether. In February I substitute wurzel for swedes, mixing the roots at first, and I do not exceed three pecks of wurzel at the two meals. In turning heifers in-calf together in a yard for the first time, they should be watched, to prevent fighting, and any vicious animal should be removed; the sudden attack of one heifer on another being quite sufficient to produce the "slip," which is so serious a drawback to the breeding of shorthorns. The constant use of linseed cake, in addition to roots and mixed chaff, for winter food, may be considered expensive feeding for breeding heifers, especially by those breeders who turn their young stock into open yards for the winter, and give them a few turnips and straw only. That heifers will *live* on this low diet I do not deny, but they will not *thrive;* and linseed cake not only improves the condition of the animals, but it keeps them in health, and heifers when so fed are always fit for a purchaser's inspection. At no age does the shorthorn show to greater advantage than from 18 months to 3 years; therefore it is sound policy to keep heifers in a fresh and blooming state, that the breeder may ensure a high price if he has such stock to part from. Heifers can seldom be turned out to grass in the spring before the 1st of May; it is not desirable to leave them out for the night until all fear of frost is over, as much grass is checked and destroyed by stocking too early. Heifers are generally housed for the night by the 1st of October; but the weather must entirely guide the breeder in this matter. In fine and mild seasons, stock may remain in the fields until November, whereas heavy rains in the month of September may render it necessary to house your stock before Michaelmas day. The autumn of 1857 was remarkable for mild and dry weather, and for the great abundance of grass, enabling the breeder to let his choicest animals remain in the pastures day and night (with the exception of two or three days) until the last day of the year. In such a season, which we may not again witness for many years, I should prefer leaving the cattle in the fields to keeping them in the best-arranged yards, as there is no food equal to grass for breeding cattle, and they should have it whenever it is to be obtained. When the grass is deficient in quality or quantity, the stock can have a little hay or linseed cake given them in the yards or fields; but I would on no account deprive them of exercise in fine weather, let the time of year be what it may.

If loose boxes and yards with open sheds are so necessary for the young and active stock, how much more essential are they for our heavy and sometimes unwieldy cows! and how frequently do we find them with a swelled knee, a bruised breast, or a slipped hip! The two former evils are the consequences of keeping them tied up; the latter is not unfrequently caused by the cow turning sharply round on being untied, and slipping down on the smooth brick floor of a cow-house. A cow-house is certainly a convenient place for cows to be in whilst they are *milked;* but all breeders who study the health of their cows will afterwards have them turned into yards, with a good shed in it, to shelter them from storms. I am persuaded that if cows were thus treated, we should have fewer complaints of pure-bred shorthorns being so tender, avoid thick knees, bruised breasts, the extremes of heat and cold, and preserve the rough shaggy coats which are so much admired and esteemed by our best breeders. Some cow-houses which I have visited have been so confined for space, and crowded with cows, that the animals are constantly in a heated state; and I have seen the hair *shorn off the backs of cows,* owing to the profuse perspiration they were generally in. The unhealthiness of such places is sufficiently obvious. If we must have cow-houses, let them be large and well ventilated. The cow should have ample room to rise and lie down; and though her hind-quarters want to be a trifle lower than her fore-quarters, her rump should not drop into a gutter, as is too often the case. The drainage of the shed should be properly attended to; the roof should be high, and thoroughly ventilated. The draining and ventilating of buildings intended to contain a considerable number of animals is now so well understood, that no new erections need contain hot or foul air, if proper precautions are adopted.

Our heifer is now near calving her second calf, and, having been dried some months, she is fresh. Advantage should be taken of every fine day, should it be the winter season, to give her a run in the field, if only for two hours. If she is not a cow which will exercise herself, I should advise her having gentle exercise for at least an hour a day for two or three weeks before she is due to calve. When very fresh, and the season of the year warm, she can scarcely have too much exercise; but the cow must travel *her own pace*, nor must she be driven in the heat of the sun. A mild dose of physic once a week will also prove beneficial in such cases, but I am not an advocate (as a rule) for bleeding cows when near their calving time. I have known cows heavy in calf fed for exhibition, which have afterwards calved safely, and in warm weather. The cow is then driven out daily by a boy, who gives the animal a half-mile walk the first journey, and gradually increases the distance to five or six miles a day. Frequent doses of mild physic are also necessary, and are sometimes given on alternate days for a fortnight.

We must now assume that the heifer, instead of being in-calf, breaks her bulling, and comes regularly in use. In this case, about a week before the heifer is coming into season, we should bleed her, give a strong dose of physic—chiefly sulphur, Epsom salts, and treacle—and exercise her for an hour after putting her to the bull. Should this treatment fail, let her pass once, and serve her at the end of six weeks, keeping her on low diet; give two or three purging drinks, and plenty of exercise between. A change of bull is also desirable—particularly from an aged to a young bull — and to take special care that the cow is *willing to receive the bull.* I am inclined to think that many cows are served at the wrong time, and if they are shy breeders, the proper period for getting them in calf is missed. To save time, when the first symptoms appear, the cowman puts the cow into the bulling stocks, and makes her have the bull, if she is willing or otherwise. This practice cannot be too strongly condemned. If the bull is not savage, nor unsafe to have his liberty, he should be turned loose into a yard with the cow, and if she stands quietly, he may serve her well once, and then be removed. But if the cow will not stand well, it is better to wait an hour or two, and again put the bull to her, when she probably will be more ready. The breeding properties of cows vary. Certain strains of blood I have noticed which breed alternate years only, successive generations following suit. Other tribes produce a live calf annually, and you may reckon safely upon the daughter "standing" and breeding as regularly as her dam. I need scarcely say how desirable it is to preserve and cultivate those strains which are most prolific, and to discard the shy breeders, unless their merits will compensate for loss of time. The most difficult cases to deal with are cows which have calved prematurely. The cow must have one or two cleansing drinks given her, and be allowed to go full two months beyond her proper calving time, before she is again put to the bull. If she is not quite clean and healthy, more time must be allowed her, and her body kept well open and cool. In the year 1855, six cows of a herd under my care, at different periods cast their calves. Of these cows, by pursuing the treatment here described, three resumed breeding, and produced live calves at maturity in 1856. One ceased to be in a breeding state, and was fatted. Another came regularly in season, was bulled at intervals for eight months, and did not stand. She was then sent to a distance, on foot, ran the round of several bulls, returned home, and was in use the same week; was served by a young bull, and stood, and produced a live calf at maturity, having lost 12 months' time. The sixth cow was similarly treated, but she never stood; and after exhausting the patience of ourselves and our bulls, she was sold barren. This cow differed from the preceding, inasmuch as she usually went *six* weeks between her bulling seasons, and I have known her to go *nine* weeks. Of these cows, one cast calf in the middle of January; two in February, within nine days of each other; and being tied up together, and fellow-cows, I had reason to believe one affected the other; a fourth slinked in April, a fifth in June, and the sixth in December. I could ascribe these mishaps to no particular cause beyond the one I have spoken of. If a cow which has calved prematurely does not come in season regularly—that is, every three weeks—I should have little hope of her breeding again; and should no special value be set upon her, it will be better to fat her at once. I should by no means discard a cow immediately, which has cast her calf, as I have known many which have subsequently bred with great regularity. The means employed by some persons to get cows to breed, almost exceed belief; the folly of the expedients being only equalled by the cruelty and torture to which the cow is subjected. Amongst other expedients to overcome nature's difficulty, which I have known to be tried, are—forcing the cow into a deep pond, after she had had the bull, and keeping her up to the neck in water for half-an-hour; swathing her rump and shape up tightly with cloths, and stopping her evacuations for six hours, a man standing guard over her; placing four 56 lb. weights across the cow's back, two either side, again swathing her, and not allowing her to lie down for several hours; and literally putting hot irons to her shape, immediately after she has been bulled. For the sake of humanity, I hope these cases are few and rare. I should indeed be astonished if cows treated thus ever bred.

We must now consider the causes of cows casting their calves, and the possibility of preventing this misfortune. A cow seldom gives much warning that she is going to cast calf, sometimes only two or three hours, and rarely more than twelve hours; so that if any certain means of preventing her slinking were known, it is too late to apply them with much hope of success. Indeed, the cow is generally so quick in this operation, that our first warning is finding the calf. This circumstance leads me to believe that the cause is usually sudden, and the effect immediate. Cows in-calf are particularly susceptible of *fright*, and some cases of slinking have so quickly followed storms of thunder and lightning, that I have been confident fright occasioned by the storm has caused the cow to cast her calf. A fright by strange dogs I believe to be a *frequent* cause of this mischief. Fortunate is the Shorthorn breeder whose farm is not contiguous to a town, and whose fields are not intersected by public footpaths. These "charming walks" for people with troublesome little dogs are I fear productive of much mischief to our breeding flocks and herds. The involuntary start which a cow gives when a gun is fired near to her, is another proof of fright, and this should be carefully avoided or guarded against. Some cows are vindictive and savage towards their fellows: such should not be turned out with in-calf cows, as the fright occasioned by a sudden attack of a savage cow may produce abortion. The sense of smell is particularly acute in the cow, and no carrion, butcher's offal, or dead game, should be thrown into yards cows are turned into, or remain in or near to pastures the cows frequent. Wounded game, dying and putrefying in the hedges or fields, may frequently be the unknown and unexplained cause of cows casting calf, as it is well-known the smell of putrid flesh will produce abortion. Pigs should not be killed in the cows' yards, nor blood of any kind thrown where a cow can get at or smell it. The slaughter-house of a homestead should be as far removed as possible from the cows' yards and sheds. Rats should not be poisoned about premises, as they stench horribly when dead, and they may lie under the cow's nose, for aught we know. Cows advanced in calf should not remain in wet undrained pastures, or lie in wet yards. I do not think with Skellett* "that the smell is of a *vegetable* nature" which offends the cow, but when cows are constantly out at grass, a variety of circumstances may at one time or other produce the "fright," to which I am far more inclined to attribute slinking. A further cause for cows slinking, not thought of in the time of Skellett, may be found in the journeys by railway which of late years have been so frequent. There can be no doubt that railways greatly facilitate the removal of cows from distant parts of the country, and gentlemen frequenting public sales, prefer buying cows in-calf, because they hope soon to have live produce. How often are they disappointed! The cow when purchased is probably six months gone with calf: she is shaken and frightened by her railway travelling; is perhaps turned into a field with a dozen cows, strangers to her, by which she is well hunted; is differently fed if kept in the homestead, and destroys the hopes of her new owner by calving prematurely. Extreme modes of feeding also tend to produce abortion. We as frequently hear of the cows of cottagers or small farmers casting calf, as those of their more wealthy neighbours. This is probably owing to their cows being turned on a naked common or barren pasture, where they pick up a scanty living, and not getting sufficient food for nature's requirements, they rapidly waste, the fœtus loses its vitality, and abortion ensues. On the other hand, excessive feeding must be avoided, as the cow's blood will become in a feverish and heated state, her body fat, heavy, and plethoric, engendering disease, which frequently results in her casting calf. Some of my suggestions for preventing cows slipping calf, or guarding against it, may strike the reader as being simple and unnecessary; but all who have had the care and anxiety of a herd of valuable cows will bear me out when I say, that nothing should be left undone, however simple, which may render your cows safe; for when one "slips," you know not how many may follow, owing to the sympathy in the animal organization; and no treatment, that I am aware of, will *prevent* the cow casting her calf, however soon her intention is apparent to the owner or his cowman. The slinking of a great number, or an entire herd, of cows, within a few weeks, is not so frequent in pure-bred shorthorns as in ordinary dairy stock; and I believe for this reason—the former will be put to the bull at any time of the year, and the cows are in various stages of gestation; the dairy cows, on the contrary, are generally bulled in the month of July, so that they may calve in the spring, and their calves have the advantage of fine weather and abundance of skim-milk. Many of the dairy cows will be in the same stage of pregnancy, and if, as I suspect, cows are more liable to cast calf at a *particular period of gestation*, the disease rapidly spreads through the herd, should an unlucky cow set the example. I have observed that cows are most subject to slip their calves from the 32nd to the 38th week of their pregnancy; at this period, therefore, they cannot be kept too quiet, whether they are in the homestead or in the field. I have many times bled cows, and given them laxative medicine, when the first signs of slinking appeared; but only in *one* case have I successfully checked the disease. The heifer in question, which threatened to slink a month before she was due, ultimately calved eighteen days before her time; the calf lived, and both did well. In the above case, I bled the heifer at once, gave her a mild dose of physic, bran mashes and warm drink, and kept her in a quiet and retired place until she calved. As this heifer had cast her first calf when only four months gone, the danger was the greater of her slinking a second time. I extract from "Skellett on the Parturition of the Cow" the symptoms of slinking, which I have found very correct:—"Whenever a cow shows any symptoms of slinking, the first step should be to separate her from the rest of the herd, and to cut off all communication that may endanger this accident spreading. The first symptoms of slinking are known by the udder suddenly filling, giving a flush of milk, by the shape showing a red appearance, and turning loose and flabby, and the ligaments or couples on each side the rump giving way to a certain extent. When these appearances take place, the cow, after removing her to a place by herself, should be narrowly watched, in order to give every assistance, as well as to prevent the accident, if possible." Cows in-calf should at all times be kept quiet. I do not advise their running in rich feeding pasture, up to the knees in grass. I consider second-rate pasture good enough for breeding cows; and if they have to traverse the field for their food, so much the better. A constant supply of pure water in the field is indispensable. When the herd is turned out to grass in the spring, the yearlings should be put into one field, heifers from two to three years old into another field, cows in-milk into a third, and the dry in-calf cows into a fourth. Nor should the cattle on any account be collected into one pasture when the owner or his visitors wish to inspect them. The utmost vigilance on the part of the men cannot prevent fighting and accidents when this is done.

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* Skellett on the Breeding Cow, and Extraction of the Calf. London: Sherwood, Gilbert, and Piper, 1833.

Owing to the great heat which at times prevailed in the summer of 1857, I deemed it advisable to house the cows during the day, and the animals were thankful for the shelter. This course would probably be preferable to providing a shed in the field, for the cows to run under, as the flies might torment them, and cause the strong or vicious cows to gore the weak ones.

THE VARIOUS USES AND SUPPLIES OF BEANS AND PEAS.

Large as our production of leguminous seeds is, it is yet insufficient for our wants; and as the extra demand just now for beans, for horse fodder, draws attention to the statistics of production and consumption, we shall endeavour to collect some of the facts for general information.

We have at least the statistics for Ireland and Scotland to refer to, if we have not those for England; and from these we learn that the acreage and produce, in quarters, of beans and peas, in the last two years, were as follows—

	Acreage.	Produce.
IRELAND.		
1856	16,034	53,945
1857	13,586	44,046
SCOTLAND.		
1857	42,873½	129,720

The comparative yield per acre last year was 25.9 bushels in Ireland, and 24.2 in Scotland. In the previous year the yield in Ireland was higher, averaging 27 bushels to the acre; and in 1855 the average for Scotland was also as high as 28¼ bushels to the acre.

The extent of land under culture with beans and peas in Scotland seems to have varied but little in the last four years, averaging about 43,000 acres. In Ireland, however, it seems to be decreasing. The pulse crops are generally reckoned uncertain; but whether the reason that Arthur Young gave long ago, that the crop is worse cultivated than others, holds good still, we will not take upon ourselves to pronounce upon. The weather and seasons have much to do in this as in other crops.

While the gardener has paid considerable attention to the improvement of peas and beans for the table, by the introduction of new species and varieties, the field culture has been very much neglected, and the mixture of seeds is highly detrimental. As a farinaceous seed for the food of man, the kidney-bean or haricot is considered by the French and Spaniards to be far superior to any other legume, and next, if not of equal, importance with wheat. In several European countries, in North America and the Central American States, kidney beans are not only used in the green state to a much greater extent than in this country, but are cultivated in the fields, and by every cotttager who possesses a piece of garden-ground, for their ripe seeds, of which they make various kinds of dishes, and consider them of as much importance in their domestic economy as the cottagers in this country do potatoes.

As food for man, peas and beans are highly nutritious, from the quantity of casein they contain—about one-fourth their weight—and when mixed with fat substances they make a most wholesome diet. The ancient Italians used bread made of bean-flour or meal; but it was heavy and indigestible, like the peas-bread of Scotland and the North of England. Rye or wheat flour is often mixed with bean-meal, which makes the bread a degree better.

The Chinese make cheese from the casein of peas. The peas are boiled, and coagulated by a solution of gypsum. The cheese gradually acquires the taste and smell of milk-cheese. It is sold in the streets of the large cities, and forms a considerable article of the food of the people.

There is a large white pea used in China for pressing oil from, and in which an enormous trade is carried on at Shanghae and the Northern Chinese ports, the cake being afterwards largely used for manure. We alluded to this pulse a year or two ago, when treating of oilcake; but it is worth recurring to again, now that numerous new ports are opened to foreign trade in China. Either for its oil or the cake, it may be of use to ourselves or our colonies, and the identification of the species producing it is worth attention. Peas usually contain only from 2 to 3 per cent. of their weight of oil; but this large white pea, of which we have samples, seems to be more prolific. It is thus alluded to in Simmonds's "Commercial Products of the Vegetable Kingdom:"—

"Captain H. Biggs, in a communication to the Agri-Horticultural Society of India in 1845, states that of the esculents a large white pea forms the staple of the trade of Shanghae, or nearly so, to the astonishing amount of £2,500,000. This he gives on the authority of the Rev. Mr. Medhurst, of Shanghae, and Mr. Thom, British Consul at Ningpo. These peas are ground in a mill, and then pressed in a somewhat complicated, though (as usual in China) a most efficient press, by means of wedges driven under the outer parts of the framework with mallets. The oil is used both for eating and burning (more for the latter purpose, however); and the cake, like large Gloucester cheeses, or small grindstones, in circular shape, is distributed about China in every direction, both as food for pigs and buffaloes, and also for manure."

The lentil, chick pea, lupine, and other edible pulse, are not much grown with us, although small quantities are imported. On the Continent the lentil is much used for food, especially the large French lentil; while the small red lentil is esteemed the best of the three kinds grown in the South of Europe, Barbary, Egypt, and the Levant, and contains fully 30 per cent. of casein.

As there is an upward tendency in price, increased foreign imports of beans are likely to come forward, since for horse provender they are always largely in demand.

If the anticipations of a correspondent who a year or two ago recommended the culture of the dwarf Russian bean could be realized, we might largely increase our production of pulse. He considered, from his own experience, that 6 qrs. per acre could be obtained—a very large increase upon the present average yield. This large acreage produce is obtained in many parts of England and Scotland; but these are exceptional instances.

Our foreign supplies of pulse have been pretty stationary in the last eight years: 1849 and 1850 were periods influenced by the famine.

BEANS AND PEAS IMPORTED.

Years.	Qrs.
1849	692,299
1850	624,725
1851	417,901
1852	478,267
1853	450,655
1854	499,165
1855	458,427
1856	439,290
1857	465,674
1858 (six months)	260,882

The following shows the imports of foreign-grown pulse in the past three years, in quarters:—

	Beans.	Peas.
1855	344,948	113,479
1856	353,218	86,082
1857	305,775	159,899

In the first six months of the present year the imports have been 206,350 qrs. of beans, and 54,532 of peas.

THE CULTIVATION OF THE TURNIP CROP.

When a judicious selection of manure has been made for the turnip crop, the next step is to employ it in the most effectual manner. In former papers we have referred to the use of farm-yard manure and two classes of artificial manures, viz., those having bone or ammonia respectively for their distinguishing character. We now propose noticing the various modes in which these fertilizers are employed, together with the relative merits of each plan; and, in doing so, we will first notice farm-yard manure. The condition in which this should be applied to the land depends upon the character of the soil; for example—if the field is close and heavy, it is evident that dung applied in a slightly-fermented state must have a tendency to render it more open than if the same manure were added to it in a thoroughly rotten state. The rigidly of the manure is destroyed by the decay, and its ability to open the soil is thereby reduced; on the other hand, if the soil is already sufficiently light in its nature, it is clearly a disadvantage to render it more so by the use of dung in a slightly fermented state; but we should apply the manure thoroughly rotten, so as to overcome this condition. We may therefore readily accept the evidence of long-established practice, that as land becomes more clayey and stiff in its nature, so the dung should be used upon it in a less rotten condition; whilst as the soil approaches the character of a sand, so it should be used in a more decayed state. All the intermediate qualities may be regulated on the same principle, according as it appears desirable to render the soil more or less compact in its nature. Hence, every farmer must use his own judgment, and the application of this rule will be found very simple.

We must, however, inquire how the condition of the manure is regulated. It may be very desirable to know in what condition the dung should be applied; but this is almost valueless, unless we also know at the same time how to regulate and control the agency which influences these changes. They may be referred to a somewhat complicated action in the dung known as "fermentation," which it is unnecessary here to define; but for our present purpose it is sufficient to know the mode of controlling its action. This process of chemical change in the dung, which is called "fermentation," requires the presence of the air to render its action rapid; and the decay is more or less active in proportion as the air gains access. This is consequently under our control; for, if we want to retard the fermentation, it is simply necessary either to let the dung remain firmly trodden down in the yard or pit in which it may be, or else, when made into a heap, let it be compressed tightly by the carts going over it. Should a more rapid decay be desirable, any movement which admits the air will favour its action—such as turning it, and putting it into a heap without pressing it down.

It must not, however, be supposed that this is the only condition which operates upon the rotting of the manure, for it needs not only air, but moisture, to render the fermentation complete. If moisture is deficient, we have "a dry rot," and an appearance of mould which is decidedly objectionable, because of its prejudicial influence upon the fertilizing quality of the dung. The presence of moisture produces a totally different decay; and on account of its beneficial co-operation, should always be present during fermentation. It is a frequent practice on some farms to have the liquid-manure of the yard pumped upon the dung heaps; and it is an excellent system, for in this manner the dung receives a very desirable supply of moisture, and any fertilizing matter the liquid contains is thus added to the heap. It is also especially worthy of notice that recent investigations into the fermentation of dung have revealed the following important fact, and its cause, viz., that our heaps of farm-yard manure contain the valuable fertilizing compounds of ammonia in two forms—the one extremely volatile, and thereby capable of being readily lost when spread upon the land; the other not volatile, and may therefore be exposed to the sun fearlessly. Now, as there is a considerable quantity of dung applied to turnip land in the months of May, June, and July, when the weather is frequently exceedingly hot, it is clearly desirable for every turnip farmer to know how he may decrease the former, and increase the latter. It is evident that, with all the diligence and speed shown in covering the dung, much of the volatile matter must be diffused into the air, and becomes—so far as the operator is concerned—practically lost. The conditions under which the volatile compounds are formed are an excessive heat of the heap and a deficiency of moisture. In those cases in which moisture was freely supplied to the heap, and a moderate fermentation encouraged, the proportion of volatile manurial matter was quite nominal; but where these conditions were neglected the proportion became very large, and in the employment of the manure much of its value was lost. It has, therefore, been shown to be highly desirable to take every care that all heaps of manure which are heating freely, or, [in other words, fermenting rapidly, should have frequent applications either of liquid manure or water. This is a modification of practice of considerable value to the cultivator of the turnip crop.

The time at which the dung is most advantageously applied is also dependent, in a great measure, upon the soil it is intended for. We all know that in ordinary practice there is a considerable loss in the rotting of the dung, and, except in a few cases, where *very unusual* care is taken of the manure, this loss is constantly arising. It has also been shown that soils which have a moderate proportion of clay in them are capable of acting like storehouses for the matter produced during fermentation, and retaining those fertilizing materials until required by the growing plant. This power appears to vary in some measure with the proportion of clay; thus a sandy soil being without any clay is almost destitute of this power, whilst in a clay soil it is very powerful: and hence our common terms of "hungry soils" and "holding land," which are so frequently used in speaking of soils of these classes. If a soil does not possess the power of retaining the manure applied, it is not desirable to add the dung long before the sowing of the crop, which is to gather it again; whilst, on the other hand, if the soil can secrete all the products arising from the fermentation of the manure more perfectly than we can preserve it out of the soil, it is clearly an inducement to entrust the dung to its safer custody. There are other considerations which render it desirable to apply the dung to the land as early as circumstances will permit, especially the advantages which result from the more complete intermixture of the manure with the soil. Upon our strong soils the early application of the dung is desirable, and for these it should be used in a fresh condition. This practice is rapidly extending in some parts of the midland counties, where much of the dung is ploughed in before winter. Upon light soils the manure should be well rotted, and applied immediately before the last ploughing.

The use of bone manures—which are chiefly valuable for the phosphates they contain—may be advantageously considered as having two distinct duties to perform. The first is, to promote a very quick growth from the period of germination until the young plant is well into its rough leaf; and the second duty is to maintain a steady and progressive growth. In their functions such manures are much assisted by the ammoniacal manures, guano, &c.; and it has been found desirable to give the young plant a certain allowance of each of these manures, which encourage a very rapid growth, and render the crop comparatively safe from the turnip beetle, its first enemy. If, however, the whole of the manure applied has been drilled with the seed, we have a very rapid early growth, and great promise of a future crop, which is often deceptive. The reason is clear: our manure being kept very much in one narrow line, as the plants grow so they get beyond the manure, and their roots are searching where no manure can be found; the natural result is that bright hopes fail to be realized, for the crop after making a limited growth, gradually ceases from further progress, and becomes unhealthy. When the artificial manure has been used in conjunction with farm-yard dung this does not arise, for the early growth having been promoted, and the plant thrown into a vigorous condition, it is enabled to search for the manure which is distributed throughout the soil, and the consequence is we have a steady growth, which generally produces our heaviest crops, and certainly yields our most solid roots. If the supply of farm-yard manure will not suffice for the whole of the land, and some portion of it must rely solely upon artificial manures, it is desirable to imitate the latter practice as closely as possible, by drilling some of the artificial manure with the seed, and sowing the remainder broadcast. This will in a great measure obviate the difficulties which are too frequently observed where the turnip crop solely depends upon the artificial manures drilled with the seed.

OBSERVATIONS ON THE RECENTLY-INTRODUCED MANUFACTURED FOODS FOR AGRICULTURAL STOCK.

By J. B. Lawes, F.R.S.

In common with other agriculturists, I have been invited, by advertisements in the papers, by placards on the walls, and by circulars containing numerous testimonials from distinguished persons, to employ certain manufactured foods in the feeding of the animals on my farm. These foods frequently cost from 40s. to 50s. per cwt. Taking, for those for which it is given, the published average prices for the six weeks ending July 17th, 1 cwt. of the following stock foods would cost as under :—

	s.	d.
1 cwt. barley	8	4
,, oats	9	2
,, beans	9	4
,, peas	9	6
,, lentils	10	0
,, oilcake	10	0
,, linseed	16	6
,, hay	4	0

The manufactured foods thus cost, weight for weight, four or five times as much as the most nutritive of the ordinary stock foods on our farms.[*] Very undeniable evidence of the superiority of the former should therefore be required to induce the farmer extensively to employ them. But it is rather strange that among the numerous testimonials in general terms, no evidence based upon exact comparative experiment, showing actual weights of food consumed and increase in live-weight obtained, has been brought forward in favour of these costly foods; nor does a reference to the circulars give much insight into their composition.

We do, however, in one circular find the report of a professor of chemistry, stating that the food sent to him for analysis contained, besides nitrogenous and mineral matters, upwards of 50 per cent. of respiratory matter. It is further added, that if given to cattle in the proportions stated in the prospectus, they *must thrive*. In reference to the above statement of composition, it may be observed that it would apply almost equally well to any of the substances, except the hay, in the foregoing list of ordinary foods, which cost only about one-fourth or one-fifth as much.

The following is the result of an analysis in the Rothamsted laboratory, by Mr. Segelcke, of one of these foods. A practical trial of the same food will be noticed further on.

Water	12.86
Nitrogenous substance	15.51 [†]
Fatty matter	6.22
Starch, sugar, &c.	55 97
Woody fibre	5 50
Mineral matter	3.94
	100.00

Independently of the slight colouring with turmeric, and flavouring with cumin, anise, or other of the stimulating and carminative seeds used in cattle medicine, which these foods frequently exhibit, the constituents as here stated could be supplied by a mixture of barley-meal with some of the leguminous seeds enumerated, and oilcake or linseed. Such a mixture, according to the prices quoted, could be prepared for about one-fourth the price of the manufactured cattle-food.

These foods are recommended to be used in comparatively small proportion to the total food consumed. The animals have, therefore, still to rely for the bulk of their nourishment upon ordinary food; and it is stated that, with the use of these manufactured foods, the quantity of corn may be reduced to about one-half; and that coarse and comparatively innutritious matters, such as bran and chopped straw, will, by the admixture, be rendered palatable and nutritious.

Now bran and chopped straw contain a large proportion of woody fibre, which, though required for bulk by the ruminant animals, passes through their bodies in a finely-divided state, but otherwise almost unchanged. More or less of the soluble matters are extracted from such food during its passage; but no evidence has been brought forward to show that these manufactured foods will so stimulate digestion as either to extract more of its already-existing nutritious matters, or to render the woody fibre itself, of the coarse foods mentioned, more directly serviceable to the nourishment of the animals.

All animals require in their daily food a given amount of digestible and convertible constituents, such as starch, sugar, pectine, gum, oil, nitrogenous compounds, and certain mineral matters. The proper amount of some or all of these *must* be contained in the food supplied; and no stimulant, or any other device, can substitute that necessary amount, if the animal is not to decrease in weight. If, on the other hand, the animal be required to increase in weight, as in the case of our growing and feeding stock, an additional amount of digestible and assimilable constituents is required beyond that which, under otherwise equal circumstances, would keep the animal at a fixed weight. In fact, no stimulus whatever can substitute the supply of the digestible and assimilable constituents in the food, whether it be required for the purposes of labour, or of increase in weight. In other words, the waste of matter in the body by respiration and perspiration, the loss by urine and fæces, and the gain in weight of fat, flesh, bone, &c., must all come from constituents *actually contained in the food.*

Some years ago an extensive series of experiments was conducted, at Rothamsted, on the feeding of oxen, sheep, and pigs, most of the results of which have been published, either in the Journal of the Royal Agricultural Society of England, or in the Reports of the British Association for the Advancement of Science. These experiments showed how much the character and productiveness of the foods employed depended upon the amounts they supplied of certain digestible *non-nitrogenous* substances—such as starch, sugar, fatty matter, &c.; certain *nitrogenous* substances—such as albumen, &c.; and certain *mineral* matters. It was further found that the ordinary, or staple foods, when in proper admixture with one another, supplied the several constituents far more economically than when mixtures were attempted to be made, in which some of the constituents (starch, sugar, or oil for instance) were employed in a comparatively pure state; that is, after having undergone an expensive process of manufacture in their preparation. Indeed, unless fresh and cheaper sources of food can be discovered, so that we can be supplied with starch, sugar, oil, &c., at a cheaper rate than they are provided in hay, corn, oilcake, and the like, we cannot hope economically to replace the latter by special manufactured foods for stock.

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[*] Of course the relation will vary with the market prices; but the prices per cwt. can at any time be easily calculated for the purpose of the comparison.

[†] Nitrogen 2.45 per cent.

It may be asked—if we can with advantage employ concentrated manufactured manures for our crops, why cannot we also economically employ concentrated manufactured foods for our stock? The answer is plain. In using the concentrated manufactured manure, containing a certain amount of nitrogen or phosphates, for example, the bulk of the crop is obtained from *other sources*—such as the *atmosphere and water*, not supplied by the farmer's hand; the *natural constituents existing in his soil*; and the *residue from previous manures and crops*. The application of a small quantity of ammonia and mineral matter will often yield as great an increase of vegetable produce, as if 20 or 30 times the weight of farmyard dung had been employed. This is not to be wondered at, when it is considered that by far the greater bulk of the dung consists of water and other constituents which the plant can obtain either from the air or the soil. We thus get, by the use of concentrated manures, a much greater weight of increased produce than there was of manure employed. The case is very different in the supply of food to our stock. The quantity of the constituents returned in the solid and liquid excrements, and in the increase of the animal, must invariably be very much less than was contained in the food consumed. No concentration of constituents, nor any amount of supply of some only, of those required for the *respiration*, the *perspiration*, the *excrements*, and the *increase*, can enable the animal to obtain a particle of what is requisite for these from any other source than his food.

In the case of stock-foods, therefore, the scope for economical manufacture or concentration is very limited. Among the natural complex foods, hay may he said to be more concentrated than straw, and corn more concentrated than hay. Of the individual non-nitrogenous, or so-called respiratory and fat-forming constituents of food, fatty matter is very much more concentrated than starch or sugar. But our ruminant animals cannot thrive upon exclusively concentrated food, even though it be so in the limited degree in which it exists in corn. They require a certain amount of the bulky but innutritious woody fibre, which they find already combined with other constituents in hay or straw. Those animals, such as pigs, which do not require the same proportion of woody fibre for their digestive operations, are provided with a suitable combination of starch, sugar, oil, nitrogenous substance, and mineral matters—already formed in corn and other natural foods—far more economically than they could be supplied with them by the intervention of manufacturing processes.

There is, in fact, only one manufactured staple article of food employed by the farmer with advantage on the large scale. This is oilcake. Even oilcake is not manufactured exclusively for the purpose of feeding! it is the residue of a process for obtaining oil, the value of which, to a great extent, meets the cost of the production of the cake. The cake was produced before there was any demand for it as food for stock. It would continue to be produced if the farmer did not so employ it. Its price as food is not regulated so much by the cost of production, as by what the farmer will give for it in competition with other articles. It may be mentioned, however, that many of the recently-introduced manufactured foods cost four or five times as much, weight for weight, as our most nutritive oilcakes.

From all that has been said, it will be clear that these newly manufactured foods cannot substitute any of the necessary constituents contained in our ordinary stock foods any further than they themselves supply them. So far as the mere supply of alimentary constituents is concerned, a mixture of linseed or oilcake, and corn-meal, can provide these at one-fourth to one-fifth the cost of the specially-made artificial foods. Such foods cannot therefore be relied upon as staple articles. The virtues which they really do possess over and above those which could be secured at one-fourth to one-fifth the price are confined, therefore, to the action on the health and digestion of the animals of the small amount of stimulating and carminative seeds which they contain. In fact, so far, they are sauce or medicine, rather than food. As such they are likely rather to increase than diminish the appetite for further nutriment. Still it is quite possible that, if judiciously compounded, they may be of service in keeping horses in a more healthy state of body, or in aiding the digestive powers of weakly animals which do not readily consume and thrive upon the ordinary foods. It should, however, be clearly understood by the farmer, that these manufactured foods cannot do away with the necessity for a given amount of digestible and assimilable constituents in the collaterally-consumed ordinary food. There is, as yet, no exact evidence to show that they can, even in their office of condiments or medicines, enable the animals profitably to appropriate a larger proportion than they otherwise would, of the constituents of the other food they consume. That is to say, there is no proof afforded, that with their use there is either a larger amount of increase obtained for a given amount of food constituents consumed, or that a smaller amount of the food constituents passes off unused and effete in the fæces.

Below are given the results of the practical trial of the food, the proximate analysis of which has been already recorded. The plan of the experiment was as follows: 6 pigs were selected and divided into two lots of 3 each, the collective weights of the respective lots differing from one another by only 2lbs. To lot No. 1 a mixture was given, composed of 9 parts barley-meal and 1 part bran. To lot No. 2 the same mixture of barley-meal and bran was given, with the addition of 2 parts of the manufactured food to every ten parts of the barley and bran mixture. The food was in each case stirred up with hot water, and both lots were allowed as much of their respective foods as they chose to eat. The results of this comparative experiment were as follows:—

	DESCRIPTION OF FOOD.	
	Lot 1. Nine parts Barley-meal, One part Bran.	Lot 2. Nine parts Barley-meal, One part Bran, Two parts Manufactured Food.
No. of Pigs	3	3
Duration of experiment	28 days	28 days
Original weight	357 lbs.	355 lbs.
Final weight	496 ,,	494 ,,
Increase	139 ,,	139 ,,
Total food consumed .	547 ,,	556 ,,
Food consumed to produce 100 of increase.	393	400

The amount of increase for a given quantity of food consumed was in both cases good. It is obvious, however, that so far from there being less total food consumed when the manufactured meal was employed, there were 9lbs. more of the mixture eaten when one-sixth of it consisted of the expensive manufactured food; whilst the amount of increase in weight was exactly the same in the two cases. In fact, the results are so nearly absolutely identical that the difference cannot perhaps be fairly attributed to any intrinsic difference in the character of the food. But it is, at any rate, clear that nothing was gained by adding to the barley-meal and bran one-fifth of its weight of food, costing about five times as much money.

The general observations that have been made above are, then, fully borne out by the results of this experiment. In conclusion, I feel bound to say, that I should require much clearer evidence than any that has hitherto been adduced, to satisfy me that the balance-sheet of my farm would present a more satisfactory result at the end of the year, were I to give to each horse, ox, sheep, and pig, a daily allowance of one of these costly foods.—(Journal of the Royal Agri. Soc.)

Rothamsted, July, 1858.

THE AUTUMN MEETINGS OF THE LOCAL AGRICULTURAL SOCIETIES.

The autumn gatherings are just now at their full tide. We have had the celebration of some half-dozen or so, of more than passing importance, during only the last few days. They appear neither to be losing their interest nor influence. On the contrary, we believe the general body of agriculturists never took a more active participation in the proceedings. Their landlords, moreover, thoroughly unite with them in doing justice to such occasions. There are few by this who content themselves with the passive compliment of a £5 note, their best compliments, and a haunch of venison. Many, like Mr. Langstone, in Oxfordshire, and Mr. Stanhope, in Lincolnshire, not only attend themselves, but bring the best of their cattle with them. The effect of so strong a pull all together is nearly everywhere apparent. The character of the stock exhibited has marvellously improved. There is hardly a local meeting but that has an entry or two quite fit to go on for higher honours. Of course the force of such an example is never so great as when brought home to a man's own door. When Smith sees what Browne, who is only a tenant farmer like himself, can do, he begins to consider why he, too, should not do a little more. By next year he will have a ram to show, a prize heifer to sell, or a speech to make, as a successful exhibitor, at the annual dinner.

The very "business" even of this annual dinner has also been considerably amended. The vapid flowery orator, who talked merely for the sake of talking, is going fast out of fashion. The local reporter will not follow him, and his best of neighbours tire of hearing him. At the Maidstone meeting, Lord Darnley, the president of the day, asked those who succeeded him not to deal in empty compliment, but to speak out. And at Banbury, Colonel North made this request the preface to his toast-list—that every man would keep himself as much to the point, and "cut it as short," as possible. The practical man—the great authority after all of these occasions—is gradually getting a far better chance of a hearing; and it will only be his own fault if he does not use it. So far, however, as this season has gone, the great lesson has been taught outright in the show-yard, rather than enforced by any after-deduction over the dinner-table. There has been scarcely an address we have felt called upon to report. The fact is, there has been rather the want of a topic. Even in these times of low prices, it would not do to again unfurl the banner of Protection! Then, Agricultural Statistics seem to have quietly died out with the Highland Society's determination to have nothing more to do with them. The Guano Monopoly does not threaten to trouble the buyer half so much as it may the seller; and really, without it be the Steam-plough, there does not promise much to make a sensation.

And still there has been no lack of well-known speakers —men the farmer has often heard or read of ere now. There has been Mr. Newdegate at Tamworth, where, according to the gallant regulation of the Sparkenhoe Club, bright eyes and winning smiles must have again endangered the heyday of his bachelorhood. Then Mr. Henley, no longer to be regarded simply as a country gentleman or good landlord, but as a right honourable member of the Cabinet, met his constituents on the same day at Banbury. An exposition of the principles of a Conservative Government, and how it might come to meddle with Reform, furnished the chief topics of an address that has been by no means without its interest. This, however, was not of an agricultural character; and so we turn on to Mr. Mechi at Manchester, and nicely balanced against him Mr. Ferrand at Keighley. Neither can be complained of as not going into the subject matter of the meeting. Both, indeed, spoke at length upon farmers and farming. But Mr. Mechi, especially, was in want of a topic—of some novelty wherewith to improve or amaze his audience. As it was, he went quite on the old story—years ago he had been called a fool for using a steam engine; what did it cost to keep cart horses; the value of the sewage of towns; deep drainage, deep cultivation, the employment of more capital, and the advantage of farmers paying double the rent they now do. In justice, let us put this a little more fully. "He had found, upon questioning some Polish and Russian friends, that their good crops were not much above a-half of what was grown on our best farms in this country. But then, they said, their cost was very little: they could buy the fee simple for £3 or £4 per acre. It would be a sorry thing for this country if the cost was so little. He hoped to see the time when the rent would be about £3 per acre. It would be a happy thing for the farmers if the rent were doubled, supposing the increased rent represented the improvements made by the landlord. Non-improvement was unprofitable. If some one were to offer him a farm of a thousand acres of undrained land, he would not have it as a gift, to be compelled to farm it himself."

But the speech of the autumn has, so far, been clearly that of Mr. Ferrand, at the Keighley Meeting, in Yorkshire. He touched on almost every thing Mr. Mechi referred to, as well as on many other important branches of the subject. Mr. Ferrand is worth following. He has evidently much practical experience, a sincere liking for the pursuit, and the ability as a landlord to indulge a little in experimentalizing upon it. He traces the advancement of his own neighbourhood with a force that may not be without its moral elsewhere: "In the year 1815, his uncle, Mr. Walker Ferrand, of Harden Grange, received a premium at the Otley Agricultural Show, for having turned over with the plough the greatest quantity of land by a pair of horses driven by the holder; and in those days it was usual to plough with horses, three, six, or even nine in a line. The same quantity of land could now be easily turned over with a pair of horses driven by the holder. He was sure they might safely say that, even in ploughing, great improvement had taken place in that district; but when they saw the face of the country at the present time, and compared it with what they knew it to be, either from experience or information, forty years ago, the agriculturists of Keighley had a great deal to be proud of. And how had the present state of things been accomplished? Not by idleness, not by slovenly farming, nor by being drones, which many people of late years had been pleased to call agriculturists; but by an energy, a zeal, and a determination to improve their land and increase their crops, which did infinite credit to the farmers of the district."

There is a deal of plain truth and honest praise in all this—a desire to allow merit where it is really due, and that we conscientiously believe has been deserved by the English farmer in his endeavour to raise the status of his business. And yet how oddly it reads with what Mr. Mechi had to deduce for the good men of Manchester!—that the present cultivation of this country was disgraceful to English agriculture, that we had not done our duty in this respect, and so forth. But we take it, if English agriculture be a disgrace to this country, it is an example to nearly all others. Mr. Ferrand himself refers to this meeting at Manchester, in a passage on the art of draining, which has the recommendation of being by no means wedded to any one certain depth or distance. The more, indeed, a man studies this—the more experience he has, the more ready will he be to admit the impossibility of setting up any one standard of maximum or minimum. There are, though, King Canutes yet, who sit in self-appointed dominion over the waters, and declare—"Thus far shalt thou go, and no further!" On the other hand, the practice of Mr. Ferrand has been thus diversified:—

"He had lately read a speech delivered by a most able man, Mr. Brooks, at the Manchester agricultural meeting, in which it was boldly stated that every farmer should drain four feet deep. Mr. Mechi, a large farmer in the South of England, also said a great deal about deep drainage. He (Mr. Ferrand) had himself drained land three feet, three feet six inches, and four feet deep, in different kinds of soil, and he found each system to answer in the particular field in which it was tried; but in some instances, while he had drained three feet deep and cleared all the water, he had drained three feet six inches deep in another field, and might as well not have drained at all. Instead, however, of taking up the old drains, he put down new drains, half way between the old ones, four feet deep, and in doing that he believed he did not exaggerate when he said that he struck, in a ten-acre field, into some 30 or 40 springs of water which had entirely missed in the previous drainage; and he had made that land in two years grow a most beautiful crop of white clover (applause). To accomplish this, he had, after draining the land, done what a great many persons called him a fool for doing—spread all the sour clay soil which he had dug out of the drain on to the surface of the land. That clay, however, contained a mass of indigenous clover seed, and by its use, and the system of drainage which he had adopted, he was now able to show a field which astonished every person who saw it. While he told this fact, and also informed the assembly that the adjoining field, which was drained three feet deep, also answered, he must not forget to mention that when he came into white, soft, porous soil, on a sloping hill side, he drained six, eight, ten, and in one place as much as twelve feet deep, till he got to the springs, and by that means he carried off the water, and got the field perfectly dry."

Mr. Ferrand proceeds at equal length on the cleansing of land, the growth of root crops, "the tilling" of pastures, and the importance of good breeds of stock. In a word, this speech at Keighley is a grand answer to the abuse the party Mr. Ferrand is identified with has been so long subject to. Few men were more conspicuous in the battle of Protection than Mr. Ferrand himself; none more "outrageous" on the question. And, when this was settled, when the battle was lost, what did he do? Sit down in gloomy despair, and court the ruin he had predicted? Not a bit of it. He drained, he manured, he ploughed deep, he invested money in every reasonable way; and he said, "If there is a chance still for agriculture she shall have it." Could Mr. Mechi or Mr. Caird have done more?

THE OXFORDSHIRE AND BANBURY AGRICULTURAL SOCIETIES.

MEETING AT BANBURY.

The union between the Oxford and Banbury district associations is somewhat peculiar in its character. It is by no means the merging of one body into another. On the contrary, either carefully preserves the distinctive features of its own idiosyncracy. Mr. Henley is still the President of the Oxford Society, as Colonel North is of that originating at Banbury. The show of the one is held early in the summer, and of the other, according to long practice, in the autumn. We believe, too, that each has its own working staff, committee, secretary, and so on. In fact, the only ostensible union is that the meeting is taken alternate years at Oxford and Banbury. It is a question whether such a centralization of forces is so complete as it should be. Indeed, a proposition was made at the dinner on Tuesday last to re-christen the association as "The Midland." We have, however, one well-known Midland Counties Society already, while there can be no possible reason why this should not be known as "The Oxfordshire."

Still, by any other name it would seem to do as well. For the numerical strength of the entries, we seldom remember having seen so much good stock as we did at this meeting at Banbury. The county itself is well provided, and the adjoining districts gave some strong support to the show. The Shorthorn classes, for example, were wonderfully good. Two Oxfordshire landlords, Mr. Langstone and Mr. Hall, have—the former more especially—long enjoyed a repute for this breed. Then they were ably backed by such spirited tenants as Messrs. Hutt and Middleton, while Mr. Stratton and Mr. Hewer, from Wiltshire, afforded the opportunity of testing what the home-bred animals were really equal to. Mr. Stratton of course had the best of it—the best bull, the best cow, the best young bull, and the best heifer. His first prize bull "Victory" has long since proved himself worthy of his name—at Cardiff this summer, and as a yearling at Gloucester, Newport, Devizes, and, in short, throughout Mr. Stratton's territory. For his age—only two years and a-half—he is a remarkably well-grown animal, with a particularly neat head and fine touch. But, perhaps, Victory was never so severely tried as on this occasion; his chief opponent in an altogether excellent entry was no less than the second prize bull at the Royal Agricultural Society's meeting at Salisbury—Mr. Langstone's Gloucester's Grand Duke, a well-bred, fine-framed, good-coloured bull, that, strange to say, has never yet reached anything better than second honours. Double the age of Mr. Stratton's beast, he rather overpowered him at the first glance of comparison between the two; but with this point duly debated, there could be no question as to the justice of the award—although we did fancy Mr. Langstone seemed a little sore over it. But he had some recompense for any such disappointment in a special premium for a younger bull, said to be best bred beast on the ground. "The best horned animal in the yard," and for which Mr. Langstone gave a prize of £10, turned up in a beautiful heifer from the Hinton herd. With a lovely head to begin with, she was almost perfect "forward," and with not much to cavil at elsewhere. Sultana the Second, as she is called, is by Hickory, the sire of the prize bull, and, like him, a great winner on the Western Circuit. The prize cow at Banbury was Mr. Stratton's white, Matchless the Third, and both cow and heifer were the first of their entry at the Cardiff Meeting. This will show the quality of that the Oxfordshire farmers had to contend against. Mr. Hutt need by no means be ashamed of his great useful cows; while in perhaps the best lot of all the yard, the pairs of two-year-old heifers, he fairly beat Mr. Stratton, as well as Mr. Langstone. The winning pair were both good-looking and good handlers; and their owner would appear to have gone to the best blood for what he wanted. Colonel North sent a hollow-backed, indifferent-looking Alderney, and some one else a Hereford; but the Shorthorns had it all their own way, both in numbers and excellence.

The sheep show was worthy of the cattle. In one small circular tent there were grouped some most admirable specimens of long-wools, with two or three good Shropshire Downs, and some less "likely" Southdowns. But, naturally enough, the Oxfordshire Downs and the Cotswolds had the call; and the former, quite as much as a matter of course, a majority in the entry. Indeed the Oxfordshire Down was the especial feature of the occasion; and Mr. Bryan, Mr. Hewer, Mr. Miller, Mr. Walker, his Grace the Duke of Marlborough, and others, appeared amongst the exhibitors of this newly-known variety. It is, however, only new in name. There are flocks such as Mr. Bryan's, which have been cultivated for more than twenty years; and, strange as it may sound, the purity of a "cross-bred" is regarded with great attention and some jealousy. Mr. Bryan's aged ram was commended at Chester; and, after his sheep, the Duke of Marlborough's pen of ewes were pronounced to be amongst the most legitimate samples of the sort. But Mr. Miller, Mr. Walker, and Mr. Gaskell exhibited some grand sheep, and in the opinion of the Judges ranked before his Grace, at least in apparent merit. Mr. King Tombs and Mr. Beale Browne divided the honours of the Cotswolds; Mr. Browne taking the premiums for rams, and Mr. Tombs the first for ewes with the picked sheep of the meeting. Mr. Browne's pen of ewes were brought all the way back again from Ireland, where they took the first prize at the Londonderry

Meeting. They appeared to have suffered but little in condition from the trip; but the present company was rather too good for them, creditable animals as they are.

The Oxfordshire pig is a nice cross between the Improved Essex and the Berkshire, combining the quality of the one with something of the size of the other. Mr. Druce and his sons have been long famous for these, and Messrs. Hutt, Hewer, and Marriott were also amongst the more successful candidates for distinction. The latter entered a white pig of Mr. Wiley's breeding, but the run was on the Berkshire and Oxfordshire.

Neither the draught nor hunting mares, to which the horse show is confined, were remarkable for merit. The lighter breed gave one but very little idea of the good hunting country the meeting was held in. There must be surely something superior in the neighbourhood! The cart foals were better than their dams. There was no distinguishing character about the latter, and there was not in reality a prize animal amongst them. But somehow or other these district cullings rarely gather the cream of horse-flesh.

The exhibition of implements included some well-selected collections, depending, as they should, chiefly on local makers for their merits. Samuelson, of Banbury, stands amongst the first of these, although the town numbers some half-dozen other dealers or manufacturers — Gardner, Barford, Kirby, Mascord, and Allgood and Gibbs. In addition to these Messrs. Hart and Gibbons, and Nalder, came from Wantage; Mr. Sawney, from Beverley; and Mr. Billing, from Hazely. There was scarcely a good implement but was to be had here; but the only novelty was a new chaff-cutter, just patented by Mr. Gardner, and now exhibited for the first time. Its principle is one of double action, and its great merit the ease and small expense of power at which it is worked. It is, moreover, very simple in its construction and arrangement, and promises accordingly to come fast into fashion.

During the week preceding the show the Society devotes a day to the labourer, when a series of premiums are given, not merely for good service, but for skilled work—ploughing, draining, hedge cutting, sheep rearing, and so on. This seems to be by no means the least successful branch of the proceedings, while it adds materially to the influence of the association, and brings the three classes most directly concerned all well together.

The dinner, so far as the dinner itself went, was a mistake. A very fair provision of cold meats was preceded or interrupted by an ambitious course of tepid fish. The attendance, as usual, was not equal to this; and when it did come, a man ate turbot without sauce, cod without oysters, or flabby salmon—not much of a treat at Michaelmas—just as he could get it. At least half an hour was cut to waste in this way; whereas had another eighteen-pence or so been put on to the ticket, and a pint of wine included, the company would have been greater, and the thing have gone far better. But we are tired of protesting against these attempts at fine banquets, badly served, doubtfully cooked, and never really enjoyed. The wing of a fowl, a slice of tongue, and a glass of decent sherry would always bring us well on to the speech of the evening. Mr. Henley delivered this, not as a country gentleman, not as president of an agricultural association, but as one of Her Majesty's Ministers. His definition of a Conservative and his half-promise for more "Reform," have already gone the round of the papers, either for or against him, as party purpose may prefer. Colonel North made a very good straightforward chairman, preceding the business on his list with a request that every speaker would keep himself as much to the point, and "cut it as short" as possible. Up to the time we left, he had been very generally obeyed, and at no cost either to the addresses of Lord Leigh, Colonel Cartwright, Mr. Langstone, or Mr. Cother. It was Mr. Cother who suggested the more thorough union of the two societies, and at the same time the extension of the premiums for wether sheep. We scarcely see the force of this in what is essentially a show of breeding animals. He himself, however, already gives one for the best pen from rams of his own flock, introduced on the catalogue with this somewhat peculiar notice: "Mr. Cother declines showing theaves because of injuring his best breeding stock."

LINCOLNSHIRE RAMS IN DEVONSHIRE.

Sir,—Two years ago in October next, I travelled by rail from Peterborough to Northampton, with a gentleman who had been to Peterborough fair, to buy two Lincoln rams. He said he was trying to obtain great size, a very heavy fleece, and great weight of lean flesh at early maturity; he was not very particular about the handsome bust or frame. His great aim was *profit*, a great weight of wool and mutton, with a strong constitution, which is the foundation of profit, and is actual merit. The old adage is, "A sheep with a bad constitution is like a bell without a clapper."

He had, he said, a flock of 800, and he had used Lincoln rams five years, which had improved his flock of light wools greatly; so much so, that he had gained by the cross with the Lincoln, 3 lbs. of wool each sheep, and when fed 12 lbs. of mutton each, "which is an increase in my flock," said he, "of 85 tods of wool and 9,600 lbs. of mutton." Wool at £2 per tod, he gains in his flock £170 in wool; and mutton at 6d. per lb., he gained £240; "and in wool and mutton added together," said he, "I gain by the cross, or alloy with the Lincoln, £410." But the best of it is, he keeps the same number of large sheep he did small.

I am informed some first-class Devonshire farmers intend going to Mr. Kirkham's Biscathorpe ram show on the 2nd September. Samuel Arnsby.

Millfield, Peterborough, Aug. 26.

A NEW REAPING MACHINE.

Like many other valuable inventions, the reaping-machine was at first announced to an age that did not want it; and when at last the inadequacy of the old methods to meet modern requirements created a demand, it was revived as a novel wonder both in Great Britain and in the go-ahead country at the other end of the Atlantic "cable." It is not generally known that, as long ago as the year 1780, the Society of Arts proposed the gold medal, or £30, as a premium for "a machine to answer the purpose of mowing or reaping wheat, rye, barley, oats, or beans, by which it might be done more expeditiously, and cheaper than by any methods then practised, provided that it did not shed the corn or pulse more than the methods in common practice, and that it lay the straw in such manner as might be easily gathered up for binding." Here was an admirable conception of the work required to be done, but too much for inventors to attempt all at once. So that, as Pliny and Palladius had described the Roman reaping-machine, pushed by an ox, and combing off the ears by means of teeth on the front, Mr. Pitt, of Pendeford, designed an improvement upon it in the year 1786, namely, a "rippling" cylinder with iron teeth, driven by the carriage wheel. In 1793 a reaping-machine was contrived in Lincolnshire; and in November of that year, Mr. John Cartwright, of Brothertoft, near Boston, published the fact of his having invented a reaper "acting upon a different principle to one previously constructed by himself." In the same year Mr. Edmund Cartwright, of Doncaster, advertised his "machinery for *reaping or mowing corn, grass, &c.*, which, by means of one horse and a driver, will cut down six or eight acres of standing corn in a day. It is his intention as soon as one hundred machines are engaged for, to establish a manufactory of them; the price of each machine will be *twenty guineas*." The purchasers might return the machines if the invention failed to obtain the "previous seal of approbation" of the Board of Agriculture. These antiquarian items of harvesting mechanics are interesting when we bear in mind their very early date—long before Boyce's patent for revolving scythes (not exactly like those with which Boadicea performed the anti-Cæsarian operation of slashing down Roman invaders)—before the improvements of Plucknet and Gladstone; long before Salmon's clipping shears, or Smith of Deanston's rotary cutting-disc and delivery-drum.

The Rev. Mr. Bell, in Scotland, produced a successful machine many years ago; but it was the importation of M'Cormick's and Hussey's American reapers in 1851 that set numerous English manufacturers about improving and modifying, and effecting the introduction of the mower or reaper into our heavy-cropped corn fields.

Crosskill, Dray, Burgess and Key, and other makers have, by great effort and expense in practical testing, given us machines that can cope with most of the difficulties hitherto presented; but still the ingenuity and fertility of invention of our American brother-Saxons is the source from which new arrivals of improvement are continually forthcoming: so that a common piece of gossip now-a-days is about Messrs. So-and-so's new Yankee grass-mower or corn-reaper. While indebted to them for our cutters, we have made quicker progress in the delivering apparatus—Crosskill's endless bands and Burgess and Key's screws laying the corn in a beautifully regular swathe. Whether we have very heavy and straw-broken, or only light crops to harvest, we wish to have a self-acting delivery if possible; and further, it is deemed a great advantage to lay the corn at one side, out of the next course of the machine. But having saved the manual labour necessary to rake off, why not deliver in bunches instead of in a continuous swathe, and thus save the labour of "gathering"? Dray's machine, with the tipping platform, does this admirably, only the bunches are not out of the next track of the machine. Palmer's Union reaper, with a curved platform, enables the rake-man to deliver the bunches sideways; the American Eagle and Manning's machines also permit a similar laying of the cut corn in sheaf-bundles behind the horses: but when the crop is bulky, the incessant working of the rake is very severe labour. Cuthbert's improved Hussey, exhibited at Northallerton, while cutting with a very small expenditure of power (and so simply constructed as to cost very little money), effects the side-delivery in bunches by means of two rake-men, one pushing the corn back upon the platform, the other drawing it off sideways—the two motions (instead of one curved movement) enabling the corn to be deposited in perfectly regular, neat, and square-laid bunches. Cannot the machine itself be made to perform this strictly-mechanical process, leaving the judgment and watchfulness of the driver to regulate and adjust the cutting and delivery to the condition and posture of the crop, the nature of the ground, and other circumstances? Now we cannot go into the history of all the contrivances for this desirable purpose; but Mr. Atkins evidently thought there was nothing insuperably difficult in the problem when he contrived his wonderfully ingenious "automaton rake." This, our readers will remember, was manufactured and shown by Messrs. Ransome and Sims at Lincoln in 1854. However, complicated, expensive mechanism, requiring much power to actuate it, is not adapted for rapid travelling and working in the field; and other American inventors have therefore attempted the simpler movement of a rake sweeping radially over a quadrant-shaped platform. The Eagle machine has a rake of this kind, worked by pinions, circular racks, and springs; but we have never seen it tried, and, from the machine being exhibited with the manual delivery, suppose that it does not answer for English cropping. Messrs. Garrett showed at Chester a reaper with self-acting delivery, consisting of two rakes continuously revolving upon an upright spindle, sweeping a curved platform, and raised by a circular incline during their return to the front of the machine, ready to drop upon the platform at the proper place. Rotary motions being so much smoother than reciprocating ones, we should like to see this delivery thoroughly developed and brought out in combination with the best machine capable of such an attachment.

And now let us introduce to our readers the new machine with a "self-acting side-delivery in sheaf," which we have just had an opportunity of seeing in successful operation—delivering *in sheaf*, yet its price £10 less than that of our well-known machines which deliver *in swathe!* It is the invention of Messrs. Seymour and Morgan, of Brockport, near New York, and is introduced into this country as the "Britannia reaping machine" by Mr. B. Samuelson, of Banbury, who is the sole licensee for its manufacture. The North of England Implement Company, who have their central establishment at Stockton-on-Tees, and a branch depôt at Driffield in Yorkshire, have been trying the machine near the latter place, under the superintendence of Mr. F. C. Matthews, the well-known manufacturer of nitro-phosphate and ammonia-phosphate manures; and we witnessed its performances upon a piece of late oats, and also many acres of its work done upon the farm of one of Lord Middleton's tenantry on the Wold hills, near Malton. The latter work consisted of a piece of late wheat on a thin light stony soil, the straw not more than 2½ feet long: the cutting was beautifully done, the stubble 3 or 4 inches high (just clearing the pebbles), very evenly shaved, and quite free from littered corn. The bunches were delivered at every five yards, laid 3½ to 4 feet clear away from the standing crop; and while lying nearly at right angles to the direction of the reaping, were only spread out some 3 or 4 feet, so that a man ties up the sheaf without any "gathering" being necessary. The sheaves when tied were very neat, the ears being more together at one end than other sheaves gather and tied after a common scythe. In fact, some mowmen at work in the same field confessed that the machine made far better work in every respect than they did. The oats which we saw cut were certainly very light, but laid a little by the wind; the cutting was well done, and the bunches were beautifully delivered for binding. What the action of the rake would be able to compass in a very long-strawed storm-broken crop we cannot say; but our impression is, that the sole difficulty in such a case would be the great draught of the machine—the light work we saw being just fair pulling for a pair of horses throughout a day. However, we consider the self-delivering rake to be a great success for all ordinary cropping; and various minor alterations in the mechanical details, as in driving the cutter-bar, &c., will tend much to diminish the friction and consequent power required.

The horses precede the machine on one side, drawing either two abreast by a pole, or "tandem" with a pair of shafts, the latter being the form in which we saw it. The shafts are attached to a rudimentary pole, the hind end of which can be raised or depressed by the driver, and thus alter the height of the cutters above the ground, so as to cut from two-inch to ten-inch stubble. The driver's seat is behind the main travelling-wheel, and by simply pressing down or lifting his foot, he can stop or set the rake in action, in order to accumulate corn upon the platform and deliver bunches of any size at pleasure. There is a reel for bending the crop to the platform, easily adjusted to different heights, or set backwarder or forwarder; and a good dividing point and board for entering the standing corn. The platform is curved, so as to deliver behind the driver, in the track of the horses, and out of the way of the next course. The main travelling-wheel is three feet in diameter, and the off-side wheel two feet diameter, thus being able to cross furrows, water grips, or uneven ground without the hindrance so frequently met with. To the main wheel is affixed an annular wheel, of about eighty-five cogs, within which gears a pinion of thirteen cogs; on the shaft of this pinion is a mitre-wheel of seventy-two cogs, gearing with another of fifteen cogs on the crank-shaft, which drives the cutter bar, giving about thirty-one revolutions of the crank shaft for one of the main travelling-wheel. A small fly-wheel is also fixed upon the crank-shaft, to give steadiness of motion. The cutters are acute-angled, with scissor-like edges, vibrating through fixed fingers, the extent of the stroke being four inches, that is, from centre to centre of the fingers. The width of the actual "cut" is four feet nine inches, or, measured to the point of the dividing-board, five feet. The extreme breadth of the machine (for going through a gate) is just eight feet; and the framing is strong and well braced, different to the flimsy construction or defective arrangement of the woodwork seen in some machines. The self-acting rake, however, is the chief novelty and merit of this reaper; but the mechanism by which its motions are obtained is difficult to describe without drawings, though in reality very neat, compact, and free from delicate working-parts. When raking off, the rake (with its long teeth pointing downward, and with a light "guard" fixed upon it, to better separate the corn in delivery from that which is falling upon the platform) sweeps radially over the curved horizontal platform; the centre, where its supporting pivot turns, being on that side next the driving-wheel work before described. Having delivered the bunch, the rake is then lifted in the air by a partial turning of the horizontal bent stem by which it is supported, and returns to the front of the machine, sweeping over the platform, but raised 2 feet 2 inches above it. A twisting or turning of the stem (which is bent like a crank axle) the reverse way then drops the rake again upon the platform, intercepting a platformful of the falling corn, and another delivery commences. At a pace of about 2 miles an hour the sheaves are delivered at the rate of about 12 per minute, or one at every 5 yards; but, as we said before, the driver can stop the rake by the same easy movement of his foot that an organist opens the "swell" or draws a "couplet" with, and either suffers it to deliver at its own regular stroke, or varies its movement to suit the fluctuating bulk of the crop. The motions are effected in a singular manner. The shaft which carries the mitre-wheel for driving the cutter crank-shaft, and is itself driven directly from the main travelling-wheel, has another short spindle connected with it, at its inner end, by means of a Hook's universal joint, which allows of the spindle revolving when in any angular position. At the end of this spindle is a pinion working along a continuous toothed rack, inside a curved quadrant of cast-iron, fixed upon the platform, the pinion traversing horizontally one way along the top of the rack, and back again underneath it; and by proper connections with the rake-stem, the rake is thus reciprocated to and fro. As the pinion passes round the ends of the rack, it rises or falls (like the pinion in the well-known movement upon an old-fashioned "patent mangle"); and this motion of the pinion is made to turn the rake-stem partially round by a rack-pinion: thus effecting the lifting and dropping of the rake-head. A "clutch" intervenes between the first driving-shaft and the universal joint, it being this which is thrown in or out of gear by a lever under the driver's foot.

Though our attempted description is rather tedious and unintelligible, the mechanism itself is, as it were, "in a nutshell;" and we think that it is capable of still further simplification.

We need only add that the price of this machine, at the works, is £32 10s. Of course reaping and raking-off makes harder work for the horses than reaping only; but no rakeman, or rakemen, have to be carried upon the platform; and if two horses find a heavy crop too much for their strength, three may be employed. We are not among those who consider the expense of an extra horse or man of any account, compared with the advantages arising from the use of a good reaping machine.

AWARDS TO EXHIBITERS OF IMPLEMENTS AT THE MANCHESTER AND LIVERPOOL AGRICULTURAL SOCIETY.

The following were the awards in the implement class:

Messrs. Richmond, Chandler, and Norton, for their collection of chaff-cutters, 3*l.*; corn-crushers, 2*l.*: their hay-making machine, Nicholson's patent, and their one or two horse driving gear, for chaff-cutters, &c., were highly commended. Mr. H. Gough, Albert-street, Manchester, for a patent double-blast thrashing, shaking, riddling, hoeing, winnowing, and sacking machine, for finishing grain for market, 2*l.* Messrs. Picksley, Sims, and Co., Leigh, for a patent chaff-cutting machine, 1*l.*; registered malt mill, 1*l.*; and their improved turnip-slicer was commended. Mr. W. L. Fisher, Thrapston, Northamptonshire, for an improved steerage corn mill, 1*l.*; double cake mill, 1*l.* Mr. W. Hall, Daresbury, for a machine by which corn is cleaned, dressed, and delivered into sacks ready for market, 2*l.* Mr. J. Whitehead, Preston, for a cheese press, 1*l.*; and a silver medal for a patent wheel plough. Messrs. Greening and Co., Oxford-street, for an iron-wire sheepfold fence, 1*l.* Mr. W. Sawney, Beverley, for winnowing machines, 1*l.* Mr. W. Wood, Knutsford, and Altrincham, for a land roller, 1*l.*; horse hoe with screw expansions, 1*l.* Mr. F. L. Hancock, Spa, near Gloucester, for a patent prize parer of turf and stubbles, 1*l.* Mr. J. H. Winder, Sheffield, for patent rotary fountains, lifts and force pumps, with cisterns, 2*l.* Mr. W. Jonston, Fishpool, near Bury, for a double plough, 1*l.* Mr. W. Harkes, Knutsford, for a patent improved plough and pulverizer, 3*l.*: his improved lever cheese-press was commended. Mr. J. Payne, Ducie-street, for Bower's patent national gas apparatus for private residences, &c., 2*l.*: his economic chaff machine was commended. Mr. R. Tinkler, Penrith, for prize barrel-churns, 1*l.* Mr. W. C. S. Percy, Charles-street, for a double-action pugging and screening mill, for the economic manufacture of draining pipes and tiles, 1*l.*; patent revolving brick-making and pressing machine, 1*l.* Mr. J. Cameron, Egerton-street, Hulme, for an independent steam-engine, designed to suit the requirements of tenant-farmers who wish to avoid the expense of masonry for stationary power, 1*l.* Mr. J. Whitaker, Bedford Mill Iron Works near Leigh, for turnip-cutting machines, 10s. Mr. H. Inman Huddersfield, for ornamental work in tables, sofa, vases, chairs, &c., for gardens, 10s. and a silver medal.

Silver medals were awarded to the following exhibiters, for the articles mentioned after the exhibiter's name:

Mr. T. Standing, Preston, sun and planet motion churn. Messrs. F. and A. Dickson, Corporation-street, collection of grasses, wheats, and implements. Messrs. J. Eastwood and Co., Blackburn, patent compound-action churns. Messrs. S. Briggs and Co., Keighley, washing, wringing, and mangling machines. Mr. J. Banks, Derby-square, Liverpool, collection of iron and wire hurdles and fences. Messrs. J. Dickson, and Co., Market-place, collection of grasses, wheats, and implements. Messrs. R. B. Lee and Co., Market-place, collection of gates, pig-troughs, netting, &c. Messrs. J. Knight and Co., Widness, near Warrington, nitrogenised bone manure for wheat. Mr. W. H. Peake, Wood-street, Liverpool, collection of iron hurdles and field gates. Mr. J. Johnson, Cook-street, Stretford New Road, machine for washing and churning. Mr. W. Routledge, Salford, self-contained horizontal steam-engine, double-action pumping engine, valves, and stand-cock with hose. Messrs. Smith and Ashby, Stamford, Lincolnshire, hand-power chaff-cutter; their haymaking machine was commended. Mr. D. Harkes, Mere, near Knutsford, horse hoe or turnip thinner; his cheese press was highly commended. Mr. J. Cornes, Barbridge Works, near Nantwich, registered chaff-cutting machine. Mr. C. Royston, Paddington Chemical Works, near Warrington, superphosphate of lime, and bone manures. Mr. E. Archer, Russell-place, near North Road, London, patent high-pressure water-tap. Messrs. R. Ormerod, and Son, Hulme, twelve-horse power patent non-condensing stationary engine. Messrs. G. Turner and Co., Great Dover-street, London, collection of flour mills for family use, sausage-making machine, a whisk for eggs, &c., knife-cleaning machine, and churn. Messrs. Davy Brothers, Sheffield, portable steam-engine.

The following were commended: Mr. R. Postlethwaite, London-road, Liverpool, shaft and leading gears, double plough gears, and dray collar. Mr. S. Perkin, Sheffield, filters (highly commended). Mr. J. Nicholson, Market-street, harness for agricultural purposes. Messrs. W. Harrison and Co., Salford, vertical and horizontal high-pressure steam-engines (highly commended).

REVIEW.

BRITISH WILD FLOWERS, illustrated by JOHN E. SOWERBY (illustrator of "The Ferns of Great Britain," "The Grasses of Great Britain," &c.), described, with an Introduction and a Key to the Natural Orders,

By C. PIERPOINT JOHNSON.

John E. Sowerby 3, *Meads-place, Lambeth*. 1858.

"The wild flowers of Britain!" we think we hear an old farmer exclaim; "what are they but weeds, worse than useless! a nuisance, an incumbrance, a constant source of labour, expense, and vexation? Their name is legion; and do what we will, we can't get rid of them. They spring up amongst the corn, Goodness knows how; and like the Israelites of old amongst the Egyptians, the more we oppress and destroy them, the more they seem to multiply. I have been trying for the last thirty or forty years to extirpate them from this here very farm, and there they are, springing up under my nose, month after month, and year after year; and the everlasting hoe is the only resource to keep the varmint within any reasonable bounds; drat 'em!"

Stop, my worthy friend! and before you so unceremoniously denounce whole families of Nature's boundless gifts to man as *nuisances*, examine the other side of the question, and consider their utility and beauty. First, go and consult honest old Gerard ("his Herbal") or Culpeper, who will teach you that these nuisances, as you are pleased to call them, have each of them a property adapted to the cure of one or other of the bodily ills the "flesh is heir to;" and then turn your eye upon the work before us, and confess that you are venting your imprecations upon not only some of the most useful, but the most beautiful of the works of creation. If they prove nuisances to you, it is because you have *not* used due diligence in keeping them down. Nature has made nothing in vain. If "thorns and thistles" were to "curse the ground for man's sake," that curse is turned into a blessing when it stimulates industrial activity to neutralize it. In providing for the multiplication of these wild flowers, she consulted the welfare of the human species. It is *your* task to prevent them from becoming injurious, by using the strength and reason that Providence has given you, in banishing them from those fields where they are not wanted.

Is it possible that the beautiful collection of engravings in this work is really a life-like and correct representation of the wild flowers of our country? This idea struck us upon a cursory view of the several plates *as a whole*. But when we came to examine the figures separately, we recognized most of them as old acquaintances; and often have we, in days long, long gone by, when ranging the fields in all the buoyancy and enthusiasm of a youthful lover of nature, formed bouquets of exquisite beauty, culled from the very specimens that Mr. Sowerby has here so truthfully placed before us.

In undertaking the work he does not profess to teach the science of botany—an abstruse and tedious study, involving extensive and protracted reading; but to produce a volume of "reference for the field botanist, the country resident, or summer rambler, when works of more pretension are not at hand." Such readers and observers of nature will find Mr. Sowerby's book a valuable auxiliary in their researches after the rural flora; whilst as a collection of exquisitely beautiful engravings, it will form an interesting addition to the embellishments of the drawing-room table.

HIGH FARMING IN NORTH NORTHAMPTONSHIRE, ON THE MARQUIS OF EXETER'S ESTATE.

SIR,—A short time back I saw some of the best farming I had ever witnessed upon Easton Heath, near Stamford, on a farm of about 400 acres, occupied by Mr. William Dainty. It was cultivated upon the four-course, *alias* the Lincoln Heath system. Half the land was sown with turnips and clover, and the other half with wheat, barley, *&c., &c.*. For many years Mr. Dainty had heavily boned his land for turnips, besides using the best artificial manures suitable to the soil. When he entered, it was in a wretched condition, a large portion of it growing nothing better than furze. Many farmers considered it to be worthless and unprofitable. When I saw it, I found it producing large crops of corn, great and good roots and green crops, which are the mainstay of all good farming. To add to this, Mr. Dainty converts a great deal of corn into meat, by giving sheep corn with turnips, *&c.* Although a yearly tenant, he lays his money out in improvements as if the farm were his own. He observes the noble Marquis never *whips* the *free horse*, and that if good and high farming will not pay, bad cannot; that if men are so short-sighted as to half plough, half manure, and half clean their land from weeds, how can they expect to have whole or large crops? A niggard in labour is never a good farmer. Nothing ought to grow upon the land but what the tenant puts into it—*clean seed.* Mr. Dainty states, that if a tenant under his landlord dies, and has no family, the farm is then offered to the *nearest* of *kin;* and if none are to be found with property sufficient to stock and manage the farm, it is then only let to a *stranger*, which is doing as you would be done by. This is as it ought to be, *justice* between landlord and tenant. To keep pace with the times, every young farmer ought to read the *Farmer's Magazine*, if he means to be a farmer of the first magnitude or class, and for profit, which all men ought to aim at, and not for ornament. Theory combined with practice has and will do wonders. SAMUEL ARNSBY.

Millfield, Peterborough, Sept. 7.

SIR ISAAC NEWTON'S TASTE FOR FARMING.—When Newton had reached his fifteenth year, he was recalled from the school at Grantham to take charge of his mother's farm. He was thus frequently sent to Grantham market, to dispose of grain and other agricultural produce, which, however, he generally left to an old farm servant who accompanied him, and Newton made his way to the garret of the house where he had lived, to amuse himself with a parcel of old books left there; and afterwards he would entrench himself on the wayside between Woolsthorpe and Grantham, devouring some favourite author till his companion's return from market. And when his mother sent him into the fields to watch the sheep and cattle, he would perch himself under a tree with a book in his hand, or shape models with his knife, or watch the movements of an undershot water-wheel. One of the earliest scientific experiments which Newton made was in 1658, on the day of the great storm, when Cromwell died, and when he himself had just entered his sixteenth year. Newton's mother was now convinced that her son was not destined to be a farmer; and this, with his uncle finding him under a hedge, occupied in the solution of a mathematical problem, led to his being again sent to Grantham School, and then to Trinity College, Cambridge, which thence became the real birthplace of Newton's genius.—*Timbs' "School Days of Eminent Men."*

THE LEADING FEATURES OF THE IMPLEMENT DEPARTMENT OF THE CHESTER SHOW.

In a series of articles in this Journal it was our privilege last year to record the progress made in the implemental department of agriculture, as exemplified in the contributions to the wide-spreading and crowded "stands" of the Salisbury Show. That great gathering of the votaries of Ceres which was the head and crowning point of former experience, and which shot far ahead of its predecessors in extent and variety, has, in its turn, been excelled by the still grander gathering at Chester, the leading features of which it will now be our privilege to record, and out of the crush and confusion of its wide-stretching alleys, pick some points of interest on which to dilate, marshalling them in something like fair and decent order for the quiet consideration of our readers.

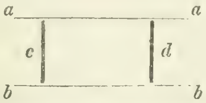
To those privileged to witness the gaiety and animation, and to mix in the festivities of the high feast of the Genius of Agriculture, held but a few weeks ago at the ancient city of Chester, striking evidence must have been afforded of the fact—suggestive of most important considerations—that agriculture has now fully and fairly entered upon a new phase of existence, a wider, fuller, and more expansive field of usefulness. Not many years ago, the words "agricultural meeting" would have conveyed to a very trifling extent the meaning which they now bear. To the majority of minds, they would only have conjured up pleasant thoughts of the soft summer time; of green fields and waving corn; of babbling brooks, flowing gently through quiet meadows shaded by waving leaves; of balmy breezes and sweet-scented flowers; of cloudless skies; and of that sound so mazily mystic, so all-pervading—the delight of the lover of the country—the hum of countless worlds of insect life. Few would have associated with the words, or deemed that the time would ever come when they would be associated together, the dingy houses of great towns, graced with flaring flags and banners bright—their dusty streets spanned by arch-triumphal fresh with evergreens, all alive with the stir and strife of expectant multitudes, waiting to welcome the entry of the Genius of Agriculture, attended by her high priests, and surrounded with her votaries. Yet all this, which not long ago would have been considered as the day-dream of enthusiasts, is but matter of sober fact, and is exemplified in each year which the Royal Agricultural Society is adding to its existence. Contrasting the high prominence which is given to, and the wide-spread interest which is taken in agricultural meetings now, with that which was the wont and usage some few short years ago; when we see them visited by their tens of thousands; when we witness an interest in them taken even by those who erst indulged in gloomy anticipation of the future, and in unfair strictures on the utility of agriculture as a calling—"stale, unprofitable, slow," as they were pleased to term it—we have every reason to have feelings of exultation at the high status which agriculture is fast taking among the arts and sciences which have tended so much to contribute to the national greatness of our country, and the social well-being of her people. Not yet, O men of Cottonopolis! do we believe, despite all you declare, that agriculture is effete and in the death throes. Nor yet is there any likelihood of the truth of a saying of a celebrated man of your "school" being realized (woe for England if there was any chance of its being so!), "that it would be better if not an acre of land in England were cultivated, and all engaged in commerce." Agriculture, nevertheless, is a great fact; it is the most important of all the sciences; and, notwithstanding *your* dictum, it is the "mother of all the arts." Not here to investigate the causes which operated so long and so strongly in keeping agriculture at a low position, sufficient for us now to know that she is thoroughly alive to the importance of her privileges, and that in the ranks of true progress she is marching forward with the tramp of a giant, in all the vigour of a renewed and healthy existence.

Not further to detain our readers with these general reflections—albeit, not unimportant and unsuggestive, it is hoped—we proceed to the more immediate purposes of our papers, taking up the features at which we propose to glance in the order in which the implements with which they are connected are employed in every-day practice.

This arrangement, which will tend to the economization of space, brings us at once to the cultural implements, and in connection with these we have our attention immediately directed to the grand feature of the Chester Show, namely, the trials of those plans by which the giant power of steam is proposed to be applied to the cultivation of the land, either through the medium of the time-honoured plough, or by a newer and more ambitious implement.

The competitors entered for the great prize (£500) were four in number—Fowler, Burrell, Howard, and Ricketts. The two first of these competitors have for their cultivating implement the plough; the third employs, on a more extended scale, an old implement known as the grubber, but modified in principle of action; while the fourth carries out cultivation on the rotatory principle.

In an article published in this Journal, under date November 30, 1857, we fully explained and illustrated the mechanism adopted last year by Mr. Fowler. Since that period Mr. Fowler has succeeded in simplifying it to a considerable extent. While retaining the general features, as there explained—the portable engine, the moving and self-adjusting anchors—he has adopted a new method of working the wire rope, obviating the great objection of one layer being coiled over the other, and of the difficulty in practice of making the coils carefully. Mr. Fowler now employs an endless rope, working on and off two grooved pulleys. By this arrangement the labour of coiling the rope, and the danger of overrunning itself in uncoiling, are entirely done away with; and a saving of rope, moreover, effected, equal to from one-third to one-half, as compared with the old system, whether of travelling or fixed windlasses. Nor do the advantages of this simple arrangement end here: as the pull of the engine on the plough is more direct and steady, the strain on the rope and its wear and tear are much lessened; and where deemed advisable, the power of two small engines, one at each end of the field, may be used in place of one large engine. The weight of each engine and windlass being thus reduced, they can be more easily transported from place to place. The windlasses are connected with the engine at the smoke-box end, and are capable of being easily attached or detached. The wire rope is joined together in lengths by means of eyes, so that any desired adjustment can be quickly made to the length of the field to be cultivated. Any deviation in the fence of a field from a straight line can be compensated for by the ploughman, who rides along with the plough-frame as it traverses the field. This is done by coiling the wire rope round small drums hung in the frame of the plough, and thus arranged:



Let *aa bb* represent the side-frames of the plough, and *c d* two drums, with their shafts revolving in bearings carried by the side-frames. The two side flanges of each drum are provided with internal wheels, which engage with two internal pinions fixed on a shaft parallel with the shaft of the drum. The shafts carrying these pinions are continued beyond the side of the plough-frame, and provided with handles. By turning these in the desired direction, the pinions gearing with the teeth on the flanges of the drums turn these round, and coil or uncoil the rope. Clicks, or parls, and rachet wheels are provided to each of the drums, to prevent them turning in the opposite direction. As the fences vary in outline, shortening or lengthening, as it may be, the respective "bouts" of the plough, the rope can be coiled on, or uncoiled from the drum, shortening or lengthening it as desired.

The rope being thus fastened at points which are stationary, is thus practically an endless one, and, in addition to being more economically worked, presents the advantage of an arrangement by which a second implement, as a harrow, can be used on the return rope.

A few notes on the arrangement of the mechanism of the windlass and carriage may be here acceptable.

The two drums (*a b*), or pulleys, round which the endless wire-rope passes, have their shafts vertical, their upper ends being supported in bearings made on the transverse frame of the engine carriage, their lower terminations revolving in steps, supported by a plank. To the top of the left-hand drum (*a*) a spur-wheel (*c*) is fixed, a similar wheel (*d*) being provided to the right-hand drum (*b*); the two wheels (*c* and *d*) being geared together by an intermediate wheel (*e*), the axis of which is supported by suitable bearings attached to the framing. In advance of the left-hand drum (*a*) and parallel to its shaft, a vertical shaft (*f*) is supported in suitable bearings; this carries a horizontal pinion (*g*), which engages wih the spur-wheel (*c*) of the left-hand drum (*a*). According to the direction in which this pinion (*g*) is made to revolve, so is the direction in which the drums (*a* and *b*) revolve, and the wire-rope made to traverse. The intervention of the intermediate wheel (*e*) between the two drums (*a*) (*b*) causes their direction of revolution to be coincident. We have now to note the arrangement by which the direction of motion of the horizontal pinion (*g*) is changed as desired. To the same shaft which carries this pinion (*g*) a bevil wheel (*h*) is hung. Above this horizontal bevil wheel (*h*) a cross shaft (*i*) is supported on bearings carried by the framing. At opposite ends of this cross shaft a right-hand bevil pinion (*j*) and a left-hand one (*k*) are keyed; these gear with the bevil-wheel (*h*). These bevil pinions (*j* and *k*) are capable of revolving independently of the shaft (*i*), and it is only when a sliding clutch (*l*) provided to the shaft, and which can slide longitudinally along it, but has no motion independent of it, is made to engage with either one or other of the pinions, that these partake of the motion of the cross shaft (*i*), and by consequence actuate the horizontal bevil-wheel (*h*). Thus, when the clutch (*l*) is in the centre of the shaft (*i*), the two pinions do not partake of the motion of the latter; the shaft simply revolving in the eye of the pinion; but by moving the clutch (*l*) by means of a suitable lever, so that it engages with one of the pinions, this partakes of the motion of the shaft (*i*), which is communicated to the wheel (*h*), the pinion (*j*), and the drums (*a* and *b*). By this arrangement, according to the direction in which the wire rope is desired to be moved, the clutch (*l*) is moved to one side or the other, engaging either with the left-hand bevil-pinion (*k*), which moves the rope, say up the field from the engine, or with the right-hand pinion (*j*), which moves the rope down the field, that is toward the engine. To the outer end of the cross shaft (*i*), fast and loose pulleys are keyed in. A strap from the driving-pulley or the crank shaft of the engine passes over one of these, according as the shaft (*i*) is required to be in motion or otherwise. The wire-rope is kept in position on the drums (*a* and *b*) by means of two small pulleys, which press on the rope as it passes on and off the drums.

It now remains for us to notice the method by which the power of the engine is made available to work the whole apparatus along the field, coincident with the advance of the plough, as it makes one set of furrows after the other. Parallel to the cross shaft (*i*), a second shaft (*m*) is supported on bearings; to the end of this a spur-wheel (*n*) is provided, which gears with a pinion (*o*) on the end of the cross shaft (*i*). To the opposite end of the shaft (*m*) an endless screw (*p*) is fixed; this engages with the screw teeth on the bottom flange of a horizontal drum (q). As the shaft (i) revolves, the pinion (o) engages with the spur wheel (n), and giving motion to its shaft (m) causes the drum (q) slowly to revolve through the medium of the endless screw (p). A rope is passed round the drum (q), led outwards, and passed around a pulley in the anchorage a-head of the engine, and returned and fixed to the carriage. As the drum (q) revolves, it winds up the rope, and causes the engine and windlass to advance slowly across the field, the motion of the "self-adjusting anchor" at the opposite end of the field being coincident with it.

To adapt the mechanism to the various kinds of field-work, Mr. Fowler has arranged his "frame" as a scarifier and broadshare. An improvement has also been made in the mechanism of the "self-adjusting anchor," by which it is made to progress as the field is ploughed. In the form described in the article to which we have alluded above, the rope which gave traction to the plough frame passed over a horizontal pulley, having its bearings in the anchor-frame; by the motion of its revolution it worked a worm-wheel and screw, which in time gave motion to a pulley (b), round which was coiled a subsidiary rope, the further extremity of which was secured to a fixed anchor, at some distance from the moveable anchor. As the pulley (b) revolved, it wound up the rope, dragging along with it the anchor-frame, the disc wheels of which cut their way in the soil in a line, and with a motion coincident with that of the engine and windlass at the opposite headland. In the improved anchor, the horizontal pulley, round which the endless traction-rope attached to the plough-frame is passed, is still retained; but by a powerful system of toothed gearing it gives motion to the barrel of the anchor hauling-rope, the barrel revolving vertically in bearings on the upper side of the anchor-frame. The barrel shaft carries a large spur-wheel, which receives motion from a pinion on a second shaft, deriving motion by bevil gearing from the horizontal pulley round which the traction-rope passes.

Those desirous of information as to the quantity and quality of work done at Chester by the improved apparatus of Mr. Fowler, here described, may refer with advantage to an able report given in this Journal, under date July 19th, 1858. We here present a few notes on this subject kindly furnished us by Mr. Fowler. The weekly and average expenses are thus stated:

One engine..	£1	4
One ploughman..	1	4
Two boys	0	12
One horse and water-cart.. ..	1	10
Weekly expenses........	£4	10

Removing from field to field, say average 15 acres, three horses half-a-day, besides water-cart horse, 7s. 6d., or 6d. per acre. Coals at 20s. per ton, 9d. to 2s. an acre. Wear and tear and interest on cost of apparatus 1s. 6d. per acre. The following are estimates of the work which the various "powers" of apparatus can effect: A ten-horse engine will plough per week 30 to 35 acres of heavy, 40 to 50 of light land, and will scarify 40 to 70 acres—the cost being thus 4s. 7d. for light, and 7s. for heavy land. An eight-horse engine will plough from 20 to 30 acres of heavy, 35 to 40 of light soil, and will scarify from 40 to 50 acres per week—the cost thus being 7s. 9d. for heavy, and 5s. for light soils. A seven-horse engine will plough from 17 to 20 acres of heavy, 30 to 35 of light, and will scarify from 30 to 45 acres per week, at a cost of 9s. for heavy, and 5s. 9d. for light soils.

The following is the estimate of working expenses, and of work done, as given by the judges at Chester, in their report to the Council—

DAILY EXPENSES.

	£	s.	d.
Engineer	0	5	0
Plough and anchormen	0	6	0
Two boys	0	2	0
Water-cart	0	5	0
Coals, 10 cwt.	0	10	0
Oil, &c.	0	1	0
Removal	0	4	0
Interest at 5 per cent, and wear and tear at 15 per cent. on first cost (£650), assuming 200 as the number of working days in the year	0	13	0
	£2	6	0

The cost of ploughing is thus estimated—

	Per Acre. s.	d.
Of light land	6	0
according to the rate of work done in trials; or taking 6 acres per day as the average, at	7	2
Of heavy land	9	2
Of trenching	18	4

Comparing this with horse power, it appears that the cost of ploughing per acre in light land would be 8s., or an increase of 33 per cent.; the heavy land at 12s. 6d., or nearly the same rate of increase; while the trenching could not have been effected at all by means of horse power; so that, if done by hand labour, it would cost 10d. per pole, or £6 10s. 4d. per acre, or more than *seven* times as much.

Those who witnessed with regret the somewhat crude arrangements and the practical difficulties attendant upon the operation of the mechanism by which Boydell's traction engine was applied last year at Salisbury to the ploughing of land, had the gratification this year at Chester of seeing, by better-considered arrangements, how powerful, and at the same time how easily controlled, an agent the endless railway engine offers to the farmer in the cultivation of his soil. Contrasted with the loose and unworkmanlike way in which ploughing and cultivation were attempted to be performed by means of the traction engine last year at Salisbury, the plan at Chester exhibited a business-like capability which augured well for favourable results. Taking a retrospective glance at last year's arrangement, we find that the plan proposed consisted of a method of attaching several ploughs to the traction engine in such a manner that the last of the series could be pulled up in a straight line to the headland, or the extremity of its bout, while the engine itself was in the act of turning at the headland, the first ploughs of the series having completed their bout. This was effected by connecting the forward part of the plough beam to a bar, which was inclined at an angle to the line of end of traction engine, the bar being connected at one end by a long chain, and at the other by a short one, to the whippletrees or swing-trees, the whippletree being itself connected to the traction engine by a chain fastened at the middle of its length. The ploughs, as they were dragged along by the power of the engine, were guided and assisted in operation by attendants, each one of whom had two ploughs in charge, each plough having but one stilt or handle, the ends of two contiguous ploughs being placed near each other, so that the two could be under the control of one attendant. The depth of the furrow was regulated in the usual manner adopted in wheel-ploughs.

For this complicated and not easily adjusted and controlled arrangement, a more compact one was substituted at Chester, being that invented by Mr. J. A. Williams, of Baydon, Wilts, a gentleman who has done much, by large expenditure of time and money, to further the progress of steam cultivation. This ploughing apparatus consists of a frame supported by and running upon three wheels, and carrying six plough frames, each of which is independent of its neighbour, and which can be easily regulated in, or altogether taken out of, work by levers within reach of the attendants. Each plough has a screw head, by which it can be set to any depth, and independent of all the others.

R. S. B.

AGRICULTURAL REPORTS.

GENERAL AGRICULTURAL REPORT FOR SEPTEMBER.

Harvest work in the United Kingdom has been brought to a general close, under more favourable auspices than for many years past, with, perhaps the exception of 1857. Even in the north of Scotland the crops have been secured in good condition, and our accounts from thence are decidedly favourable as regards the yield of wheat. In Ireland, too, the produce appears to have exceeded previous expectations; and the accounts at hand from the principal growers in this country are of a character which fully bears out the statements we have already submitted to our readers under this head: in other words, the crop, though not equal to the quality produced last year, has turned out a fair average one. Notwithstanding, however, that there is no excess in the quantity grown, and that the supplies thrashed out have not been large, the wheat trade, during the whole of the month, has been in a most depressed state, and prices have given way fully 4s. to 5s. per quarter. The pressure of foreign qualities, and the fact (well known to the millers) that large quantities of old wheat are still in the hands of the farmers, have, no doubt, had their accustomed influence upon the demand, even though consumption is admitted to be large. But the question has been seriously debated—we say seriously, because all spring corn is now so much dearer in proportion to wheat—whether the best kinds of food have seen their lowest range. Our millers, so far at least as London is concerned, have now very little competition to contend with: nevertheless, aware as they are that there is no want of supply, and that any demand on their part will be easily met, they have, as a body, declined to purchase more wheat than they can immediately convert into flour for present sale. A continuance of this state of things, with liberal importations from various quarters of the globe, must of necessity keep the wheat trade in a state of abeyance; so that, although our impression is that prices will not rule much lower than at present, there is no immediate prospect of any decided upward movement in the quotations of wheat. For all kinds of spring corn there has been much less activity, both at Mark-lane and in the purely agricultural markets. Buyers generally appear to consider that present quotations are very high when compared with wheat, and are determined, if possible, to reduce prices to what they term "a more natural level."

Numerous unfavourable reports in reference to the potato crop have come to hand from almost every district and county in the United Kingdom. Disease is said to have shown itself extensively amongst all the various varieties; but our impression is that not a few of the reports are too highly coloured; of one thing we are certain, viz., that the total quantity of potatoes grown per acre this year is fully equal to any former season, and that the actual losses are far less serious than in 1857. Of course, the keeping quality of the root during the winter months has yet to be determined; but, fram close observation, we should incline to the opinion that the supplies of good and sound qualities will *considerably* exceed either last year or the year before. An abundant supply of sound potatoes during the winter will, as a matter of course, exercise much influence upon the value of wheat and, perhaps, barley.

The growth of hops, in Kent, Sussex, &c., is turning out a very large one; so heavy is it, indeed, that the duty has been done as high as £270,000, and prices have ranged from 56s. to only 100s. per cwt., the latter figure being for choice qualities. There is still a large quantity of yearling and old hops on hand, and for which there is scarcely any demand, even at miserably low currencies.

The great activity in commerce has imparted a most wholesome influence to the wool trade. Both in London and the provinces, very large quantities of wool have changed hands at further enhanced rates; and even now, there appears to be room for a further advance in the quotations, as the stocks everywhere are light, and as woollen goods are now disposed of as fast as they can be manufactured.

The cattle markets have been firm as to price, but the condition of the stock has fallen considerably short of many former years. The second crop of hay, except in the immediate neighbourhood of the metropolis, has turned out very deficient.

Except in some localities which have been favoured with an average amount of moisture, the turnip and carrot crops are but indifferent. No doubt, therefore, we shall have artificial food selling at a high value for some time.

In Ireland and Scotland the wheat trade has been in a most inactive state and prices have further given way. Spring corn, too, especially inferior barley and oats, may be considered cheaper. The shipments to England have somewhat increased

B B

REVIEW OF THE CATTLE TRADE DURING THE PAST MONTH.

Full average time-of-year supplies of fat stock have been on sale in nearly the whole of the leading markets during the month just concluded, but their general quality has proved very inferior, and this observation applies more particularly to the importations from the continent. At no period since the passing of the present tariff have we witnessed such inferior cattle from abroad as during the last three weeks. The want of food in Holstein and in other parts of the continent has compelled the graziers, notwithstanding that they have imported large quantities of hay from this country—nearly, or quite, 100 tons having been shipped from London alone in each week—to dispose of their stock at almost any sacrifice and at almost any age. This will be obvious when we state that the average value per head of the beasts imported since we last wrote has not been more than £8; whilst we have seen large numbers sold at and considerably under £5 each! This wholesale destruction of stock must, we think, greatly reduce the exports next year; indeed, if it progresses at its present rate for another month or so, it is more than probable that very little stock will remain in the North of Europe for home consumption. Even in this country, but more especially in Lincolnshire and Leicestershire, in consequence of an inadequate fall of rain—it being fully seven inches less for the whole country than in 1857—great complaints of the want of a sufficiency of cattle food have been made; hence, both beasts and sheep have appeared in comparatively poor condition. This falling-off in quality has had the effect of keeping the value of prime stock relatively high, and of producing a great margin of difference—as much as *two shillings per eight pounds*—between the highest and lowest quotations. The deficiency of food is likely to be felt here for several months, and it will no doubt compel the graziers and flockmasters to use a much larger quantity of linseed and rape-cake than in the ordinary run of years. It is, however, gratifying to be enabled to state that the health of the stock generally has been satisfactory, and that very few losses have been sustained in any of our more important districts.

In the Metropolitan Market the trade has been quite as active as could be anticipated, even though rather large supplies of beasts (3,260 head) have been received from Ireland, in what may be termed good condition. Ireland is now becoming an important producing country for the London market, and we have seen unmistakable signs of a very great improvement in the shape and condition of the sheep which have from time to time reached us. But Ireland may do even greater things. She has sent us during the month over 4,000 sheep, some of which have found buyers at 56s. per head, and we understand that they have carried a large quantity of internal fat.

The lamb trade has been fairly closed; but, compared with some former seasons, the prices realized during the present year have not been to say high.

The annexed figures show the extent of the importations of foreign stock into London during the month.

Beasts	5,999	head.
Sheep	25,488	,,
Lambs....................	717	,,
Calves	2,735	,,
Pigs	2,472	,,

COMPARISON OF IMPORTS.

Sept.	Beasts.	Sheep.	Lambs.	Calves.	Pigs.
1852	6,619	34.759	1,132	2,388	1,847
1853	8,372	28,845	273	2,535	1,498
1854	7.805	26,230	748	1,894	2,281
1855	7,161	22,744	613	1,646	2,266
1856	7,084	20,605	3,000	2,772	1,559
1857	7.346	24,090	198	1,953	2,007

The above comparison shows that we imported a fair average supply of stock last month; but had food been more abundant abroad, the numbers would no doubt have been considerably less. Apparently we shall have prices very high during the greater portion of 1859.

The total supplies exhibited in the Great Metropolitan Market have been as under:—

Beasts	27,446	head.
Cows	533	,,
Sheep	131,150	,,
Calves	3,210	,,
Pigs	4,281	,,

Of the above supplies of beasts, 12,770 shorthorns came to hand from Lincolnshire, Leicestershire, and Northamptonshire, 2,650 various breeds from other parts of England, 199 Scots from Scotland, and 3,260 oxen, &c., from Ireland.

COMPARISON OF SUPPLIES.

Sept.	Beasts.	Cows.	Sheep.	Calves.	Pigs.
1852......	24,911	490	148,680	2,934	2,980
1853......	27,063	518	157,750	3,037	3,170
1854......	24,796	542	174,171	2,760	3,465
1855......	24,667	540	152,120	2,477	3,921
1856......	24,002	485	132,014	2,452	2,800
1857......	25,734	532	127,715	2,220	2,585

Beef has sold at from 2s. 10d. to 5s.; Mutton, 3s. to 5s.; Veal, 3s. 8d. to 5s.; Pork, 3s. to 4s. 6d. per 8lbs. to sink the offal.

COMPARISON OF PRICES.

	Sept., 1857.	Sept., 1856.
	s. d. s d.	s. d. s. d.
Beef, from..........	3 2 to 5 0	3 0 to 4 10
Mutton	3 4 — 5 6	3 8 — 5 2
Veal	3 4 — 5 2	3 8 — 4 10
Pork	4 0 — 5 2	3 6 — 4 8
	Sept., 1855.	Sept., 1954.
	s. d. s. d.	s. d. s. d.
Beef, from..........	3 4 to 5 0	3 0 to 5 0
Mutton	3 4 — 5 0	3 0 — 5 0
Veal	3 10 — 5 2	2 10 — 4 4
Pork	3 6 — 4 6	3 4 — 4 8

Newgate and Leadenhall markets have been well supplied with meat. Prime qualities have sold steadily at full prices, but inferior kinds have met a dull inquiry. Beef, from 2s. 8d. to 4s. 4d.; Mutton, 3s. to 4s. 8d.; Veal, 3s. 6d. to 4s. 6d.; Pork, 3s. to 4s. 8d. per 8lbs. by the carcass.

The manufacturing industry of the country, both home and foreign, having at length fully recovered from the last panic, we may now look forward to an increase in the consumption of meat, particularly as the operatives are mostly in full employment. When, therefore, the importations from the continent become less extensive, we shall no doubt see inferior stock assume a higher range of value.

ISLE OF ELY.

We are now enjoying a very fine close to the summer; the weather is mild, and generally fair, and all field operations are proceeding most satisfactorily. We never remember to have seen so much autumn cultivation as we have witnessed this year, and the season has been unusually favourable for it.

We shall, however, require considerable moisture before we can sow our wheats on a good many of our soils. The land ploughs up very dry and dusty on the light soil, and hard and steely on the strong tenacious lands; but with rain after this dry weather, they will pulverize beautifully, and present a very fine seed-bed. We have heard of some of our fen farmers intending to commence sowing wheat immediately upon such soils as retain sufficient moisture to vegetate the seed. We think October is quite early enough to commence sowing, and should prefer to wait until that time; and even then, with a mild autumn, there is some danger of the plant getting "winter-proud," and suffering severely from the nipping winds and frosts of the early spring months. We recommend, however, an early seeding on fen soils, sufficiently so to allow the plant to get strong and well rooted before the keen frosts of winter set in. We have now fully tested the produce of the harvest just concluded. We find the yield and quality very various. We still think the wheat crop cannot exceed, and doubt much if it will equal, an average. On the dry, warm lands, the grain is small and thin, and yields badly; but on some of the cooler soils the sample is better, and the produce greater. The prices of wheat are now very low, and unless they soon improve farming will not be a very profitable enterprise in this locality. We scarcely think prices can be continued as low as they are just now throughout the season, but rather look for an improved demand and a better trade shortly. The price of meat continues good, but the trade for store stock is not brisk. Pastures have improved considerably, and now look verdant as spring. Potatoes are not largely diseased at present, and on good lands are a heavy crop. Mangolds are good, and will produce a great weight per acre. Coleseeds are improving, but are not at all good generally.—Sept. 20.

SUFFOLK AND ESSEX.

STOWMARKET, Sept. 23.—In estimating the result of the harvest, and comparing it with the average of years, it must be remembered that we do so after a year of extraordinary abundance (1857). Wheat was planted in favourable weather over an average breadth of land; the season throughout was propitious, the time of blooming calm; but the heat in the early stage of the development and ripening of the grain was somewhat excessive. The abundance of straw and the character of the season led to an expectation of a large crop; the ears, however, were "set" with fewer rows than usual, so that, although these were well filled, the sheaves at harvest were found to be light. The yield is a good average. The whole was well harvested. The sample, though not so handsome as last year, is good. The condition generally is fine, the weight from 60 to 64lbs. per bushel. The stock of old wheat in farmers' hands is large. Barley occupied a full breadth of land, and is quite an average crop; the season throughout was somewhat too dry, so that at one time it was expected the grain would be hard and unkind. A nice rain, followed by dry weather, coming very opportunely, greatly improved its qualities for malting by giving it mellowness. Nearly half the crop was thus saved; the remaining half, however, part cut and part standing, was exposed to some days' rain and dull weather, and is consequently rather discoloured, with occasional sprouted corns. Very fine samples are rare; about two-thirds may be regarded as of malting quality, very useful, though not very handsome; and the remainder coarse, only available for distilling and feeding. A fair supply has already come to market. The condition appears generally good, and the weight is from 48 to 54lbs. per bushel. Oats are little grown in these counties; the crop is badly reported of. Beans may be considered only a moderate crop; the winter kinds are quite an average; the spring decidedly deficient, although somewhat better than was at one time expected. Peas are almost a failure. Potatoes not extensively grown. The produce good and healthy. Mangold wurtzel are fine. Turnips are much improved by the late rains. Hay moderately good.—THOMAS PRENTICE & Co.

AGRICULTURAL INTELLIGENCE, FAIRS, &c.

ABERYSTWITH FAIR.—The attendance of farmers and dealers was limited. The supply of horses and cattle was smaller than on former occasions, and few exchanged hands. Good cows and calves were in demand, and those that were sold realized fair prices, also a few draught horses were disposed of at high rates.

ABINGDON FAIR.—Large numbers of horses, cows, and sheep; trade exceedingly depressed, the great majority of stock returning home unsold. A few hundreds of sheep and lambs changed hands late in the day, at about 3s. to 5s. less money than at this fair last year—thus verifying the old adage, "Down corn, down horn."

AYLESBURY FIRST MICHAELMAS FAIR, (Saturday last.)—At this fair there was a very large supply of horses of all descriptions, and the trade was brisk in all kinds, especailly for first-rate animals, nag-horses making from £30 to £60, and several fetched as high as £80 each. Good cart-horses were also greatly in request, and high prices were obtained for first-class ones, as much as £50 to £56 being given for several, but the average price was from £26 to £40. Inferior horses also fetched better prices than have lately been obtained. In cow stock of all kinds trade was very active, and though the supply was large, great numbers were cleared off early, prices averaging for milch cows £12 to £21, barren cows £8 to £14, stirks £4 to £8 each. There were several fine herds of young Devon store bullocks, but they were too young for the requirements of the Vale graziers, consequently no trade was done in that kind of stock. For calves the trade was very brisk, and higher prices were freely given, weaners making 28s. to 48s., suckers 26s. to 38s. each. Very large supply of sheep on offer, but trade was extremely dull, and though lower prices were asked, few changed hands during the day, averaging for store ewes 28s. to 36s, store wethers 29s. to 39s., store lambs 18s. to 26s. per head. A good supply of pigs, and trade rather active. Slaughtered meat in good supply, but the trade was very dull, at the following rates: Beef, 6d. to 7½d.; Veal, 6d. to 7d.; Mutton, 6d. to 7d.; Pork, 6d. to 7d. per lb.

BALLOCH FAIR.—There was a very large show of stock, especially of draught horses, but the quality was generally inferior to that of last year. Animals of superior quality met ready purchasers at fair rates, but for other sorts the market was a dull one. The average rate obtained for good draught animals was from £40 to £45. As compared with Falkirk Tryst this market has been rather a dull one, and sellers have been obliged to give way a little.

BARNSTAPLE FAIR.—There were from 1,700 to 1,800 bullocks, but the sale was dull, at declining prices. Fat cattle 10s. to 10s. 6d. per score, cows and calves from £10 to £16, barreners £8 to £12, steers £9 to £14. The sheep market was crowded, about one-third more sheep being penned than in any former year. Prices: Fat wethers 6d. to 6½d., ewes 5½d. to 6d. per lb., lambs 18s. to 24s. Store sheep sold sluggishly. There was one feature presented, both in the sheep and cattle market, worthy of a remark, namely, the appearance of a large number of the Exmoor mountain sheep, and several droves of the hardy, symmetrical, and pure-bred Moor cattle. The exhibitors were Messrs. Robert Smith, Edwin Maunder, and Norman. The horse fair possessed few attractions. Good horses anxiously inquired after, but few exhibited.

BASINGSTOKE FAIR.—Although decidedly better than that of last year, it was hardly so good as was expected. The day was most unfavourable; but still, about 2,000 sheep were on the ground. The trade was rather dull, and prices low, so that little business was done.

BRADNINCH FAIR.—About 500 sheep, the greater part of which being disposed of at advanced prices. There were a few good steers and working oxen, for which high prices were asked, varying from £30 to £50 the pair, which prevented their changing hands.

BRIDGNORTH FAIR was not well attended, and business was flat. Store sheep were plentiful; prices rather low, from 30s. to 35s., and a few choice ones up to 40s. Fat sheep sold at 7d. per lb. Cattle not many, and sold pretty well, barrens being, if anything, a shade higher. Cows for the butcher sold at 6½d. Pigs still continue very low. The horse fair was not well stocked, and very few good animals shown. Prices continue low, and sales were effected for farm use at figures varying from £10 up to £35; one or two sold higher: the first animal in the fair was bid £50.

CARLISLE FAIR.—Although the Sands were covered with cattle, the collection of lambs was the chief feature of the fair. The number, however, was considerably less than at the first fair, but greater than at the Latter Fair last year. By eight o'clock in the morning, about 15,000 were on the ground, and a few other lots arrived at intervals. The general quality of the stock was good, and comprised about two-thirds of Cheviots, and nearly an equal number of half-breds and crosses. About four o'clock, one-half of the entire stock were unsold, and dealers who were pressed for cash or pasturage were compelled in some instances to effect sales at a sacrifice. Several lots were taken away unsold in the course of the afternoon, and many large lots remained at the close. A few fine Leicester tups were exhibited, ranging at about £5 each; but the greater portion left unsold. The average prices show a reduction of about 2s. 6d. compared with those of last year, and about 1s. compared with those of the first fair. The falling off in the demand and prices is mainly attributed to the deficiency of the turnip crop, and to the important fact that the present prices obtained for fat prevents profitable feeding of lean stock if purchased at the recent high rates. The show of cattle in quality and numbers was excellent, especially in Irish, and there was a large attendance of buyers. The sales were numerous, and good prices were obtained. A considerable total of the different classes, however, was left at the close, and is chiefly destined for markets in the east. Several prime lots of fat were exhibited, but only few sales were effected, as high prices were demanded. For one lot of 16 bullocks and heifers £16 each was offered, but refused, and were forwarded to Newcastle. Numbers and prices:—170 black cattle, the sales of which slow, at from £8 to £12 10s; 20 ditto stirks, and all sold, at from £4 to £5 10s.; 1,000 Irish heifers and bullocks, on the whole of prime quality, and brought prices from £7 to £13 10s.; 40 Ayrshire cows and heifers £9 to £12 10s.; 100 Highland heifers and bullocks, but we can quote no prices, as they nearly all left the market unsold; 50 ditto stirks, and 30 stots, selling at from £2 10s. to £4 10s.; 80 milk and calving cows from £9 to £14 10s. each; about 80 crosses, principally bullocks, sold at from £9 10s. to £12 10s. each. The horse fair was one of the best ever held in Carlisle, both in quality and number. There was a good attendance of buyers. The majority of the animals were first and second class cart horses, which brought from £30 to £40 each, being a reduction of about £2 from last season. Owners were stiff in their demand, but a large number changed hands. There was an excellent supply of ponies, ranging from £16 to £18. Saddle and hunters were unrepresented, and there was only one crooked-legged carriage-horse, for which the owner asked £45.

DUNSE TRYST.—We had about the best show we remember for many years. In the morning high prices were asked, and the market remained stationary up to ten o'clock, when the sellers gave in to the prices offered, and immediately thereafter the market was almost cleared out, and fair prices obtained. Bred and three-parts draught ewes from 37s. to 40s.; half-bred ditto from 28s. to 32s.; Cheviot ditto from 18s. to 23s.; lambs, three-parts and full bred, from 23s. to 28s.; half bred from 14s. to 18s.; Cheviot ditto from 9s. to 10s.; mutton, 6½d. to 7d. per lb.

EVESHAM FAIR.—The supply of beef was by no means so large as we have seen, but that of sheep abundant. Although a good amount of business was done, former prices were scarcely maintained. Beef and mutton realized from 6½d. to 7d. per lb. The horse fair was large, and many animals hung on hand.

GLASTONBURY TOR FAIR.—There was a great number of sheep and pigs. The bullock fair was small, and there was but a poor show of nag horses. Suckling colts were rather numerous, and a great many changed hands at higher prices.

GLOUCESTER MONTHLY MARKET.—Cattle and sheep were in full supply, but the quality was inferior. Good beef and mutton realized full prices, and a good demand. Beef from 6½d. to 7d., Mutton full 7d. per lb., Pigs from 8s. 6d. to 9s. per score.

GRAMPOUND FAIR was a very small one, both in bullocks and sheep, and there was also a small attendance of purchasers. Nearly all the bullocks were disposed of, at from 60s. to 63s. per cwt, and the sheep met a ready sale at 6½d. per lb. The sale of Mr. Hendy's rams attracted some attention; they were all disposed of, and realized about £6 each.

HALTWHISTLE FAIR.—There was an average supply of stock, and most of them in pretty fair condition. Galloway heifers were most in demand and fetched good prices. Bullocks were a slower sale. Back-end-calvers sold readily, at good prices. Draft ewes and wedders sold slowly. The demand for young horses was far from brisk, some very good ones were shown. Foals sold well, there was a good supply.

HAWICK FAIR.—The show of tups in the private sale pens was fully an average, both in point of numbers and quality. The buyers were numerous, but sales were stiff. At the close of the market a considerable number were left unsold. Bred sheep would be from 5 to 10 per cent., and Cheviots from 2½ to 5 per cent., below last year. In some instances 5 per cent. of a reduction had to be submitted to, but for the better-conditioned sheep the first-mentioned reduction would be about the run of the market. The show of lambs was considerably above what has been exhibited here for many years. The buyers were also very numerous. Although a good many lots were turned into cash, a great many were left unsold. The following are the rates of the different kinds: Three-parts bred, from 12s. to 13s., 2s. 6d. to 3s. below last year; half-breds from 8s. to 14s, 2s. to 3s. 6d. below last year; Cheviots, 11s. to 6s. 6d., being 1s. to 2s. below last year.

HOWDEN GREAT HORSE FAIR.—The show has been better for sellers than buyers, anything good having met with a ready sale at high prices. While the dealers grumbled at what they called the short supply, there is no mistake about the satisfaction expressed by the breeders—partly in words, and partly in their cheerful countenances—as they buttoned up their pockets, and departed for their distant homes, followed by the good wishes of mine host, and earnest hopes again to see them at Howden show.

ILSLEY FAIR.—There were some fine pens of lambs, which sold at satisfactory prices; the demand for other descriptions of sheep was dull, but yet those that changed hands generally supported late figures.

LAMBERT'S CASTLE FAIR was tolerably well attended: sales were very dull. The prices of fat sheep ranged from 33s. to 45s., ewes 30s. to 35s., lambs 18s. to 23s. Fat beef was scarce, and the heifers and bulls on sale were little inquired after. There were some pigs in the fair, but few horses.

LEWES FAIR.—In point of numbers the stock was not only inferior to that of last year, but considerably below an average. The number of sheep and lambs penned was 27,000; 30,000 being an average for the Lewes September fair. With respect to quality, however, many of the sheep and lambs exhibited for sale have seldom been excelled; indeed, there were certain lots of each which proved perfect models, and brought proportionately high prices. The fair opened with every appearance of a brisk sale for ewes, and many bargains were made, especially with the best sorts; but towards noon there was a reaction, which was felt to the close, for several pens remained unsold. The buyers on the one hand asked what was considered too high a figure, and the sellers on the other hand refused what they considered below the market value of their stock. Large numbers of sheep and lambs changed hands, and though a considerable portion remained unsold, the sale was an average. For the best lambs there was a fair sale, most of them being disposed of. For wethers there was not a very good sale, arising chiefly from a deficiency of sorts in the county; but altogether the prices may be said to be about 2s. above those of last year. Ewes sold from 29s. to 46s, lambs 21s. to 28s, culls 16s. to 20s.

LINCOLN FAIR was very largely attended as compared with former years. The beast fair was not to say largely, but moderately supplied with stock of various kinds and qualities, and as buyers were somewhat scarce, a languid sale was experienced for all descriptions. The sheep fair was one of the largest known for many years at this season of the year, nearly 4,000 being penned, but still the trade was far from brisk, and without animation. The best kind of wethers and gimmers realized good prices, but inferior sorts were difficult of disposal even at lower rates. The horse fair, as is generally the case at this season of the year, was very good as regards quantity, but the general quality of the animals exhibited was of a very inferior description, although some well-bred and useful animals were offered in the numerous Irish and Welsh droves, which on this occasion put in an appearance. A good amount of business was, however, done among the class of animals worth buying, but old and inferior horses were very difficult of disposal. Good cart foals and fillies, of which a very fair supply was on offer, readily found buyers at prices varying from £12 to £16 each.

LOUTH FAIR.—There was a large supply of sheep, for the greater part of which there was a brisk demand, although the trade on the whole was not so active as had been anticipated. The cattle department was not crowded, so that a ready sale was found for beasts of every description, but not at a material advance in price.

MOFFAT FAIR.—The show of rams was much larger than last year. Prices for Cheviots were down on the general class 10s. to 20s. below last year. Prices for the best class of Cheviot rams may be quoted from £10 to £21; superior animals, £4 10s. to £9; and secondary from £1 10s. to £3 10s. Tup lambs, best 23s. to 30s., ordinary 16s. to 20s. Yorkshire rams £4 to £6. Blackfaced rams, best £4 to £5 5s., secondary from 30s.

MONIAIVE FAIR.—There has not been a better show of stock seen for many years; it consisted of about 50 lots, comprising nearly 4,000 head. Owing to the recent bad weather, and buyers consequently being cautious, the demand was slow; still the presence of a few Cumberland dealers tended greatly to quicken sales. Prices for half-bred lambs were from 12s. to 18s, Cheviot ewe lambs 10s. to 13s., wedder ditto (seconds) from 8s. to 10s., old draft ewes from 15s. to 20s., cross lambs from 12s. to 14s. Upon the whole it was a fair selling market, and very few lots remained unsold.

MUIR OF OLD MARKET. — WEDNESDAY: The stock of sheep was composed chiefly of shots, and there was considerable reluctance on the part of buyers to make purchases. The market may be said to have been a stiff one, and many lots were not disposed of, the owners preferring to hang on till next day, in the hope of realizing the prices asked. Some fine tups were shown by Messrs. Mundell, Laidlaw, and Barrie, and were advantageously disposed of. Among the lots of sheep that changed owners were the following:—Mr. Scott, Lochcarron, sold the shots of shot ewes at 11s. 6d., and wedders at 19s. 6d.; Mr. Arres, Delnies, bought Cheviot ewes at 14s. 6d.; Mr. Scott, Hawick, bought two lots of cross lambs at 8s. 6d.. Mr. Maclennan, Tomich, sold half-bred hoggs at 27s., and cross wedders at 28s.; Mr. Gauld, for Mr. Merry, of Belladrum, bought a lot of slack ewes at £18 per clad score; Mr. Ross, Tore, sold a lot of slack ewes at 19s; Mr. Blake, Corriemony, bought a lot of blackfaced wedder lambs at 9s. 6d.; Mr. Ross, Kinnahaird, sold a lot of shot crock ewes at 12s. 6d.; Mr. Scott, Tullich, sold shot crock ewes at 10s.; Mr. Stewart Macrae, Auchmore, sold a lot of Cheviot hoggs at 7s. 6d.; Mr. Mackenzie, Kinnetas, sold a lot of Cheviot ewes at 14s. 6d.; Mr. Mitchell, Attadale, sold a lot of shot ewes at 13s.; Mr. Campbell, Glenmaddle, sold a lot of top wedder lambs at 11s. THURSDAY; A full average in the quantity and quality of the stock exhibited, and in advance of last year in both particulars. The number of horses was considered larger than at the corresponding market last year. The market was reckoned, on the whole, a good one—in many respects better than was anticipated. Ewes and wedders fresh off the hill sold well, but the greater part of the stock was composed of small lots of shots, and "odds and ends," which, by some good feeding, might be turned to account. A similar report may be made of the cattle shown. The good lots, and some fair crosses and Highlanders, were sold, being in lively demand, and fetched prices corresponding to, or rather above, recent southern markets, allowance being made for travelling expenses. The late improvement in the turnip crop, and the general rise in the prospect of the country, are assigned as the cause of the improvement in the market.

NORTHAMPTON FAIR.—We had a very large show of store sheep, and more sellers than buyers, and many would remain unsold. The trade was very slow. Barren ewes were in very large supply; old ones were lower, but for good two and three-shear ewes very good prices were realized. The supply of store beast was an average, and were bought at lower prices. Mutton and beef, the supply of which was not large, ruled from 6d. to 7d. per lb. Lambs were rather dearer; the price of wool has had an effect on them; this latter article has advanced again lately, and present prices seem likely, for some time, to be supported. A very large number of superior tups were sold and let by auction.

PARTNEY FAIR.—Upwards of 50,000 sheep were penned at an early hour. Prices had a drooping tendency, and before the day closed were from 2s. to 3s. per head lower than at the August fairs. Lambs made from 15s. to 30s. Drapes from 44s. to 56s. Mr. Vessy sold 200 at £3 each. Shearlings from 38s. to 45s. Mutton 7d. per lb. The tup sales, now an important element in this fair, attracted a large company, and although three or four auctioneers were officiating at the same time, each had his friends and customers. Mr. Topham's sheep, offered by Mr. Mason, were admitted by all who examined them to be by far superior to all others. This was proved to be the case by the prices given for them, twenty-eight sheep producing an average of £19 19s. 3d. One, a remarkable animal, was, after a spirited competition, bought by Mr. Thomas Kirkham for £50, another by Mr. Swain, of Wrangle, for £37, and one by Mr. Harwood Mackinder for £30. These sheep are known to have descended from the once well-known West Keal flock, and well do they sustain the reputation of their sires. Mr. Shelley's sheep, sold by Mr. Hollis, averaged £12 2s. The best sheep was purchased by Mr. Simons, of Wisbech, for £41. Two by Mr. Kemp for £21 and £20. Mr. Wilson's, of Stickford, sold by Mr. Hollis, averaged £7 15s. 6d. Selections from the excellent flock of Messrs. Iles, Mayfield, and Walesby were also offered and realized good prices. In the beast fair there was only a limited supply. Trade was dull, and (except for the best beef) prices were lower.

POOLEY FAIR.—There was a very large show of both cattle and sheep, which caused buyers to hang back. A very good trade, however, was done, at prices considerably lower than last year.

READING FAIR.—There was a pretty good supply, but the trade ruled dull, at the following prices: Cart colts, £15 to £35; good horses fit for London work, £40 to £60; the inferior description of horses could scarcely be disposed of at any figure. Store heifers, two-year-old, from £5 to £8; Devon steers, £10 to £13; milch cows, £14 to £22; in-calf heifers, £10 to £16; barreners, £8 to £11; for two-year-old bulls there was no demand; yearling bulls, from £4 to £6. In the pig fair the trade was excessively dull; pigs from two to three months old fetched from 5s. to 8s.

TOWYN FAIR.—The supply of beasts was not so large as was anticipated, and prices ruled rather low. There were a good number of local drovers, as well as some from a distance. Best three-year-old bullocks fetched from £11 to £12; two-year-old steers realized from £8 to £9; milch cows reached £12. The show of horses were meagre, the demand being only nominal. Pigs were cheap.

WIVELISCOMBE FAIR.—This fair was held on Saturday last, Sept. 25th, and was numerously attended by agriculturists in the counties of Somerset and Devon. The attendance, however, was not so large as might have been expected, considering the growing importance of this fair, for the disposal of store stock of all descriptions; and probably the holding of the Taunton Great (monthly) Cattle Market the same day tended in some measure to lessen the amount of business transacted. Of fresh steers, owing to the great scarcity of grass in West-of-England pastures, we had an unusually large supply; but for horned cattle there was a very dull sale—in fact, the greater number were driven away without changing hands. There was a moderate show of sheep offered; and breeding ewes of the Down breed sold remarkably well. There were comparatively few transactions in fat stock, late quotations being generally well maintained.

WOODBURY FAIR.—The weather was everything that could be desired, but the attendance was not so large as we have seen on former occasions. There was quite the usual number of sheep penned, between 10,000 and 12,000, and they met with a better sale than at Toller Down, by 2s. or 3s. per head. A prime lot of Down ewes, shown by Mr. Dowden, of Roke Farm, realized 45s. per head, and a pen of lambs, exhibited by Mr. J. F. Fowler, Kingston, 31s. 6d., while Mr. Beasant's lambs made 30s., and his ewes 40s. per head. Upon the whole, prices were considered to be satisfactory. There was about an average supply of cart colts, in which department, however, the trade was very depressed, and animals which last year would have made £40, might be had at from 30 guineas to £35. A number of Irish horses met with a sale at from £20 to £25 for those of a useful description, but inferior were quite unsaleable.

WORCESTER FAIR.—The attendance was good, but the business done in most articles was small. The supply of store sheep was large, but the quality very inferior, and few were sold, at a reduction of 7s. to 8s. on the prices obtained at our last September fair. Fat sheep met with a ready sale at 6½d. to 7d. per lb., and all that were offered were quickly bought up. A very indifferent supply of beef, and but few sales. A great many pigs changed hands at a slight advance in price. Cart horses were in good supply, and were all sold out at good average prices. There were no good nags. Cheese, of which there was only a middling supply, brought from 5½d. to 7d.

WELSH FAIRS.—Fairs were held at Langadock and Maenclochog on the 16th, at Llanboidy on the 18th, at Landysil on the 20th, at Newcastle Emlyn on the 21st, at Pembroke and Llanarth on the 22nd of this month. There was a larger number of store beasts for sale at each of those places, and a very full attendance of dealers, who purchased nearly the whole of those that were suitable for the English fairs, at a slight advance in their value. Oxen were scarce, and sold briskly at high rates. Fat cows were in fair supply and demand, at from 4½d. to 6d. per lb., according to quantity, sinking the offal. Cows with calves were scarce, and consequently sold at improved prices. A large number of agricultural horses and colts were on offer, and many sold at about late rates. A very large number of sheep were shown at Maenclochog, Llanboidy, and Llanarth, which sold at highly satisfactory prices. Bacon pigs and porkers were in fair supply and demand, at about 5d. per lb. dead weight. Horses were in large numbers, at no improvement in their value.

IRISH FAIRS.—LISTOWEL: The pig fair was well attended by buyers, and there was a good supply of fat pigs. The prices were much better than last fair. The cattle fair was well attended by buyers, and there was a good supply of stock, and an improvement in prices since the last. ENNISCORTHY was unusually largely attended with stock of all kinds, but depression was the general and prevailing feature, and consequently little business was transacted, except in pigs, of which between 700 and 800 were bought at from 38s. to 40s. per cwt. BENNETT'S BRIDGE (Monday): Fat cows, very scarce, sold at from £10 to £14; new milch cows, also scarce and in demand, £9 to £12; springers £8 to £10: strippers, £7 to £9; two-year-olds, £7 to £10; yearlings, £4 to £6; fat sheep, 35s. to 45s.; lambs, 20s. to 27s.; fat pigs, 42s. per cwt.; stores, 40s. to 50s. each; bonhams, 15s. to 50s. per couple. BANAGHER (Friday): The cattle fair closed about twelve o'clock, all the prime lots exhibited for sale having been purchased at that hour. There was a very good supply of milch cows and springers that brought prices varying from £8 to £14; weanling calves went at from £2 10s. to £3 10s. All the inferior lots were driven out unsold. DUNLEER (Co. Louth): There was a tolerably good supply of prime beef, which met with a ready sale for the sister country. Prime beef met with a ready sale, for exportation, at from 56s. to 60s. per cwt.; some of the prices obtained reached rather beyond that figure. There was a good supply of springers, for which there was sharp buying; their prices ranged from £8 10s. to £16 and upwards. Dry cows and store cattle were in fair demand, the former rating at from £7 to £10 each; the latter at from £6 to £10 for two-year-old bullocks. Yearlings sold moderately well, at from £4 to £5 10s. each; and weanlings at from 25s. to 60s. each, according to the breed or condition. Mutton may be quoted at former prices, viz.—from 5½d. to 6½d. per lb. The supply of store pigs and small ones was uncommonly good, for which the buying was very sharp, the former ranging in price from 25s. to 45s., and the latter at from 18s. to 28s. the couple. Bacon pigs appear to be somewhat more plentiful, and commanded from 48s. to 50s. per cwt. What were offered for sale were bought up at an early hour.

REVIEW OF THE CORN TRADE

DURING THE PAST MONTH.

The anxious period of harvest-time has now about closed all over the British Isles, after some hindrances in the North and Scotland by rain, and more damage to the condition in Ireland; but the greater productiveness of these countries will in some degree compensate for a partial deterioration in the produce. Balancing the various conflicting accounts received, we arrive at the conclusion that an average crop has been gathered throughout the United Kingdom—Scotland excelling this season in its quantity and quality, and many localities in England producing samples little inferior to the crop of 1857. Early preparations have commenced for autumnal sowing; and with a farther moderate fall of rain, much land will speedily be in fine tilth for seeding: as yet, the work of ploughing is too severe.

The markets during the past month have presented one uniform feature of dulness for all grain, supplies having been more liberal of our own growth, and foreign imports continuing free. It is not, however, in the fact that farmers have sold more freely than last year at this period—as the sales of the last four weeks were 13,344 qrs. less than in 1857—but in the large influx of foreign grain that has set in upon a year of unusual abundance, that we find the chief cause of the present depression. The official returns up to the end of August show our receipts this year to have been in wheat and flour equal to 3,880,204 qrs., which already exceeds 1857 by 1,811,337 qrs., and would, if continued at the same rate, be 5,820,306 qrs. per year. Such imports after such a crop are unparalleled, and had it not been for a rapid increase of population, prices must have descended still lower; but this equally notorious fact, together with the welcome imports of the precious metals, has given a comparative steadiness to markets. The present, however, is not a year of general abundance, not a single country on the globe being able so to report its produce, while population goes on with its daily claims, which, in the course of a short time, work up to a serious amount, and before the season has sped its way (leaving out the question as to what may betide future crops) the stores may get exhausted, and the stream turn strongly in growers' favour. But very recently there were reports that Spain and Portugal were in a condition to supply themselves, while only at the close of last week the telegraph informed us that the Government of Portugal have decreed the free import of breadstuffs up to next May. America, too, was boastful of her power to export; but last year's efforts, on the part of the States, resulted only in a total shipment in wheat and flour of equal to 1,388,976 qrs., and the present harvest there, though of better quality, is again short and less promising in its results. The statistics of Ireland, though indicating general progress, show a diminished acreage in all cereals of 37,717 acres, wheat alone amounting to 8,260 acres less, which, at 4 qrs. to the acre, would be 33,040 qrs. short—or in all grain, at 5 qrs. per acre, would be 188,585 qrs. short, with an acknowledged universal deficiency in spring corn here and abroad. The comparatively high rates, too, paid for the latter make wheat relatively cheaper for cattle feed; and the inferior qualities, being now much neglected by millers, will doubtless be used freely in this way, and considerably reduce the amount of human food. The extent to which disease will make inroads on the very large crop of potatoes being uncertain, there can be no calculation on the availableness of this root to supply any prospective deficiency, our dependence being more safely placed on the over-left stocks of last year, which are yet considerable, and much required for mixing. The questions, therefore, of greatest interest are—will corn-growing countries continue to send as freely, and will farmers here do the same, without regard to prices? Importations lately have been to a losing account, and the present relative prices of our own and foreign markets have a most discouraging aspect; this circumstance, together with short crops in many corn-producing districts, we think, must, as the season advances, diminish imports; while seed-time, and the getting over urgent claims, may incline farmers to reduce their sales—as, unlike the town speculators, they have no extra granary rent to pay for storing. One or two lively weeks would soon decide the doubtful, and bring on a more healthful and thrifty trade. Prices since last month have receded 2s. to 3s. per qr. generally on fine wheat, which can alone be taken as the standard of value, lower sorts and those out of condition being irregularly priced.

The following will show the state of foreign markets: In France, both the wheat and flour trades have been very heavy, with prices somewhat reduced, the uncertainty as to whether the sliding-scale will come into operation after 30th instant keeping markets in suspense. The best wheat at Paris was worth about 43s. per qr., and would not perhaps bring 46s. duty paid in the London market. Flour at Nantes offering at 33s. 6d. was worth in London about 36s. to 37s. per sack, the expenses being about 3s. 6d. per sack. At Rotterdam prime Zealand white wheat was worth 44s. to 46s., ordinary and good 59lbs. to 60lbs. per bushel 42s. to 43s. The quotations of red Louvain wheat at Antwerp were about 45s. New Mecklenburg and Upland at Hambro' were held at 46s. to 48s., Holstein red to 45s. Red wheat at Konigsberg was worth 48s., white to 52s. The best high-mixed at Dantzic still ranged at 54s. per qr. after some decline. At Stettin, Pomeranian wheat was worth 47s. In Spain, at Santander, the top price of Spanish flour just equalled the top price of town-made quality in London, viz., 43s. At Algiers, both hard and soft wheat were quoted at 43s. to 44s. per qr., with but slender arrivals. At Odessa, holders from the unfavourable accounts in Poland and other provinces, were firm; Ghirka wheat being held at 40s. At Taganrog, the price was 35s. 6d. Berdianski wheat at the place of growth was 40s. per qr. free on board. At Montreal, white winter wheat was 40s. per qr. Most of the late supplies at New York consisted of inferior quality; fair red was worth 42s., and Western white 44s. 6d.; Southern white 49s. 6d. per qr.

At Mark-lane the first Monday during the past month commenced with moderate supplies, the samples from the near counties being about as numerous as usual. Picked new and fine old qualities went off readily on fully as good terms, but all below them found but a slow sale. There was some demand also for Baltic qualities, but generally the foreign trade was slow. In the country there were better supplies, and generally buyers found prices in their favour, but it was rather the reverse as the week closed. Leeds and Selby were 1s. per qr. lower, but Hull was firm; Spalding and Bristol were 1s. per qr. up. Liverpool on Tuesday, for fine wheat was 1d. to 2d per 70 lbs. higher. Friday's market was without change.

The supplies of the second Monday were still moderate. The samples from Essex and Kent, though not abundant, mostly came in damp order, which reduced prices 1s. per qr., and occasioned many parcels to hang on hand. Holders of foreign being indisposed to give way, found but a retail trade. In the country new samples were generally down 1s. per qr., but at some places the reduction was 1s. to 2s., as at Lynn, Louth, Boston, Leeds, and Manchester, and most of the Saturday markets. Liverpool on Tuesday only gave way on Irish new wheat 1d. to 2d. per 70lbs., but at Friday's market this description was further reduced 2d. to 3d. per 70lbs., while old wheat and flour sold well.

On the third Monday, business commenced on larger English, but less foreign supplies. The near counties sent up but moderately, but the dulness of all the country markets seemed carried into this day, and though there was some improvement in the condition of the samples, sales could not proceed without a concession of 1s. to 2s. per qr. The foreign trade was also very stagnant, but holders did not submit to more than 1s. per qr. reduction. This heavy market did not find a perfect response in the country, Boston, Lynn, and Barnsley noting fair sales at unaltered rates, and Hull only giving way 1s., there appearing a good deal of resistance on the part of growers, some of whom withdrew their samples, but more generally as the week advanced 1s. and even 2s. reduction was taken. Liverpool on Tuesday conceded 2d. per 70 lbs. on all old samples, and a farther reduction of 1d. to 2d. on new was taken on Friday.

On the fourth Monday, there was again only a moderate show, the fresh samples from Kent and Essex being many of them in fair condition, but the day was a repeat of the previous Monday, none but the finest qualities being in request, most factors noting a fall of 1s. to 2s. per qr., though millers did not allow they could buy on such easy terms. In the foreign trade there was a retail demand for mixing, on little altered terms; but to quit freely it would have been necessary to undersell the English market.

During the four weeks of the past month the following have been the imports into London: in English, 31,165 qrs., in foreign 44,219 qrs.; giving a weekly average of 7,791 qrs. English, and 16,054 qrs. foreign. This shows a diminution in the foreign and increase in the English supplies, but together there is a decrease from last month of 2,464 qrs. As we think there must be a mistake in the general averages for the first week, we do not note them; but the town averages show a decline of only 1s. 11d. per qr.; this shows either an improvement in the quality, or that factors have overstated the decline.

The receipts of flour in the same time have been 61,031 sacks from the country, 15.652 brls. and 2,345 sacks foreign, showing a weekly increase of 1,511 brls. and 547 sacks foreign, and a decrease in the country sorts of 386 sacks weekly. The flour trade has not been subject to the decline noted in wheat, foreign imports not having been free, and the want of water in the country, as well as during last month, limiting the quantity sent up. The town trade have kept up the top price all through the month at 43s., millers alleging that to keep up their quality they have been choice in their samples, paying a great price for extra old foreign. In Norfolks, the only reduction was 1s. per sack on the third Monday, when 30s. became the quotation at which the month closed. In foreign, the late new imports having scarcely broken bulk, the quality remains to be proved; but before their arrival fine sorts of American had become so scarce as to command extreme rates, while the inferior lately received was quite neglected.

The barley trade has been heavy, especially for middling sorts, both English and foreign. So few really fine samples have as yet come to the London market that prices have been scarcely quotable, yet for anything select as high as 45s. has been paid; and perhaps such would still bring near this price, but the bulk of samples of home-growth being below a malting standard, have competition in the better sorts of foreign, and so both have been depressed, good 53lbs. Danish being only worth 29s. to 30s. per qr. The low sorts, too, have been less easily sold, in consequence of the large arrivals and reduction in the value of oats: the only change quotable was on the fourth Monday, when prices generally gave way 1s. per qr.

The imports into London during the four weeks were 4,976 qrs. English and 43,955 qrs. foreign, giving the weekly average of 12,232 qrs., which is about 4,000 qrs. over the August weekly supply.

The malt trade has evinced all through the month more tone, with some improvement in price, as the prospect of the receipt of ample supplies of malting to the London market have diminished.

The oat trade, which stood the shock of large supplies last month with a trifling decline, has seriously yielded, especially in the value of new corn, old Russian sorts having given way fully 1s. 6d. per qr., and new 2s. to 3s. from their first appearance, though the only heavy arrival was during the last week. We expect, therefore, some reaction. The first two Mondays were calm and unaltered. On the third Monday, with but a moderate show, the anticipation of abundance had its effect upon dealers who had not quitted the stocks secured in the previous month; prices, therefore, gave way fully 6d. to 1s. per qr. on the last Monday, when the weekly supply reached 105,000 qrs. The reduction on old was another 1s. per qr., and on new 1s. 6d. The imports for the month into London have been from the United Kingdom 15,527 qrs., from abroad 178,373 qrs., giving a weekly supply of 48,501 qrs., against 62,031 qrs. weekly in August. As the principal imports have been Russian, so if we get an early closing of the Baltic, there may be again a rise in this grain, which is undoubtedly a short produce in this country.

In beans, the tendency even of old qualities has been downwards, the warm weather lessening the consumption as well as the high prices; but new not being so fit for use, on the receipt of only moderate supplies, have become quite a drug, and difficult to get rid of: they have gradually receded in value 2s. to 3s.; while old and foreign, perhaps, have scarcely been more than 1s. per qr. cheaper. The receipts into London have been, in English qualities 3,863 qrs., in foreign 6,949.

Peas also being in better supply have been reduced in value, duns and maples being about 2s. per qr. cheaper; and white boilers arriving in some plenty before the demand from the continent, have fallen fully 3s. per qr. This reduction we expect will be recovered in the winter; but till then there may be dragging markets. On all hands our own crops are acknowledged to be miserable; and it is doubtful whether the deficiency can be readily made up in foreign quarters. The arrivals in September were 1,645 qrs. English, and 2,290 qrs. foreign; so that any spirited speculator could clear the market.

Linseed throughout the month has been steady; foreign advices at the places of growth, and a foreign demand at the places of consumption, serving to keep the article at a high range; while the favour in which cakes are now held, both for nutrition and manure, keeps them very saleable and dear.

In the seed trade, the chief changes have been in white mustard and canary: the former first fell to 13s. per bush., and then recovered 2s. per bush. of its former price; the latter fell from 100s. to 68s., and in the last market became worth about 80s. per qr. Winter tares since the rain have been in improved request, and rather dearer. Trefoil and cloverseed very firm. Reports in France speak of great local failures, and an advance; here also, there are some unfavourable opinions, but without any wild inclination to speculate. In hempseed, rape- seed, and other seeds there has been little alteration.

CURRENCY PER IMPERIAL MEASURE.

Shillings per Quarter.
WHEAT, Essex and Kent, white 40 to 48 ...... new.. 41 to 47
,, red 38 to 44 ...... new.. 39 44
Norfolk, Linc. and Yorks., red 39 43 ... new.. 40 44
BARLEY, malting, new — to 36 ...... Chevalier, new 37 41
Grinding, new .. 27 30 ...... Distilling 29 31
MALT, Essex, Norfolk, and Suffolk .... 57 65 fine 68 70
Kingston, Ware, and town made .. 57 65 ,, 68 70
Brown .... 53 55 — —
RYE.............................new — — 30 36
OATS, English, feed...... 21 27...... Potato...... 27 34
Scotch, feed .... 21 27 30.. Potato...... 27 33
Irish, feed, white .... 22 25 fine 26 31
Ditto, black .... 21 23 ,, — 24
BEANS, Mazagan .... 37 38...... Ticks 36 38
Harrow .... 37 41...... Pigeon...... 40 46
PEAS, new, white boilers 40 44.. Maple 42 44..Grey 41 43
FLOUR, per sack of 280lbs., Town, Households 37s., fine 40 43
Country .... 30 32...... Households.. 30 35
Norfolk and Suffolk, ex-ship.................... 29 30

FOREIGN GRAIN.

Shillings per Quarter.
WHEAT, Dantzic, mixed 45 — high do. — — extra — 50
Konigsberg ....40 47 ,, — — — —
Rostock ....45 — fine.... 46 — — —
American, white ..43 50 red .. . 42 45 — —
Pomera., Meckbg., & Uckermrk, red 42 46 — —
Silesian, red ....42 44 white 42 45
Danish and Holstein 40 44
Russian, hard 39 40 .. French..42 43 white 42 45
St. Petersburg and Riga 40 43
Rhine and Belgium .... — 46
BARLEY, grinding......23 27 .... Distilling.... 28 30
OATS, Dutch, brew, and Polands 24 30 Feed........ 24 26
Danish and Swedish, feed ...24 26 Stralsund.... 25 27
Russian.. 22 24
BEANS, Friesland and Holstein......................... 36 41
Konigsberg ....36 39 Egyptian.... 35 36
PEAS, feeding ....40 42 fine boilers.. 42 45
INDIAN CORN, white ....34 34 yellow...... 32 35
FLOUR, per sack ....French 33 37 Spanish .... — —
American, per barrel, sour ..20 22 sweet....... 24 25

MONTHLY RETURN.

AN ACCOUNT SHEWING THE QUANTITIES OF CORN GRAIN, MEAL, AND FLOUR, IMPORTED INTO THE UNITED KINGDOM, AND ADMITTED TO HOME CONSUMPTION, IN THE MONTH OF AUGUST, 1858.

Species of Corn, Grain, Meal, and Flour.	Imported from foreign Countries.	Imported from British Possessions out of Europe	Total.
	qrs. bush.	qrs. bush.	qrs. bush.
Wheat	356438 5	17335 7	373774 4
Barley	152447 7	..	152447 7
Oats	256999 6	..	256999 6
Rye	951 3	..	951 3
Peas	8241 7	926 6	9168 5
Beans	21523 3	..	21523 3
Maize or Indian Corn ..	142738 1	25 6	142763 7
Buck Wheat	634 6	..	634 6
Beer or Bigg	..	..	..
Total of Corn and Grain	939975 6	18288 3	958264 1
	cwts. qr. lb.	cwts. qr. lb.	cwts. qr. lb.
Wheat Meal and Flour	225131 0 21	22268 2 17	247399 3 10
Barley Meal	..	..	..
Oat Meal	2 0 22	1 0 0	3 0 22
Rye Meal	2 0 0	..	2 0 0
Pea Meal	0 1 0	..	0 1 0
Indian Meal	5 2 0	91 0 0	96 2 0
Buck Wheat Meal......	2 1 0	..	2 1 0
Total of Meal and Flour.	225143 1 15	22360 2 17	247504 0 4

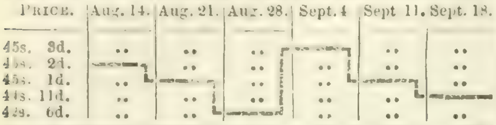
IMPERIAL AVERAGES.

FOR THE LAST SIX WEEKS:	Wheat.		Barley.		Oats.		Rye.		Beans.		Peas.	
	s.	d.	s.	d.	s.	d.	s.	d.	s.	d.	s.	d.
Aug. 14, 1858	45	2	31	3	28	3	35	4	46	7	43	11
Aug. 21, 1858	45	1	33	7	27	9	35	10	46	10	44	3
Aug. 28, 1858	42	6	34	6	27	10	34	0	47	8	43	8
Sept. 4, 1858	45	3	34	0	27	3	34	6	46	7	45	1
Sept. 11, 1858	45	1	35	2	25	7	33	9	45	9	44	7
Sept. 14, 1858	44	11	36	1	25	8	34	6	46	3	45	1
Aggregate average	44	8	34	1	27	1	34	8	46	7	44	5
Sametime last year	58	4	41	8	27	1	39	0	46	9	41	8

COMPARATIVE AVERAGES—1858-57.

From last Friday's *Gaz.*		s.	d.	From *Gazette* of 1857.		s.	d.
Wheat......	13[illegible] qrs.,	44	11	Wheat......	135,244 qrs.,	56	9
Barley......	17,40[illegible] ..	36	1	Barley......	28,275 ..	42	3
Oats........	7,782 ..	25	8	Oats........	8,257 ..	26	5
Rye	610 ..	31	6	Rye	1,208 ..	37	0
Beans	2,7[illegible]3 ..	46	3	Beans	4,680 ..	45	4
Peas........	6[illegible]9 ..	45	1	Peas	1,709 ..	42	11

FLUCTUATIONS IN THE AVERAGE PRICE OF WHEAT.



PRICES OF SEEDS.

BRITISH SEEDS.

TREFOIL, new	19s. to 21s.
TARES, Winter, new, per bushel...........	12s. 6d. to 13s.
MUSTARDSEED, per bush., new 12s. to 14s., brown	10s. to 12s.
CORIANDER, per cwt...........................	16s. to 20s.
CANARY, per qr	72s. to 80s.
LINSEED, per qr., sowing —s. to 72s...crushing	66s. to 68s.
LINSEED CAKES, per ton..............	£9 10s. to £10 10s.
RAPESEED, per qr.	68s. to 72s.
RAPE CAKE, per ton........................	£5 10s. to £6 0s.

FOREIGN SEEDS, &c.

CLOVERSEED, red —s. to 52s.,............ white	70s. to 85s.
TREFOIL, ...	17s. to 18s.
HEMPSEED, small, per qr. .... Dutch	12s. to 15s.
CORIANDER, per cwt.	16s. to 18s.
CARRAWAY ,, ...	42s. to —s.
LINSEED, per qr., Baltic 56s. to 58s....Bombay	60s. to 62s.
LINSEED CAKE, per ton...................	£9 10s. to £11 0s.
RAPESEED, Dutch..............................	62s. to 66s.
RAPE CAKE, per ton.........................	£5 0s. to £6 0s.

HOP MARKET.

BOROUGH, MONDAY, Sept. 27.—A very good demand has existed during the past week for Weald of Kent and Sussex Hops, and an advance of from 2s. to 4s. per cwt. has been firmly maintained. In the first class of Mid and East Kents there has not been much doing, and in yearlings and samples of earlier date the demand is very limited. Our currency is as follows:—

Mid. and East Kents	70s.	84s.	112s.
Weald of Kents	54s.	62s.	68s.
Sussex	48s.	54s.	60s.

Duty, £270,000. MEASE & WILD.

WORCESTER, (Saturday last.)—A good supply of new Hops, both at the fair on Monday, and at market to-day, which sold readily at 54s. to 63s.—quality very good.

MAIDSTONE, Sept. 23—Hop-picking is now in full operation, and they come down very fast; in fact more rapidly than was anticipated. There appears to be a general impression that the produce will be short—merely two-thirds of that of last year, and the quality is not so good generally as the nature of the season led the growers to expect. At the present time many of the grounds in this district are swarming with vermin, eating as it were the very vitals of the hops. They are also beset with red rust, mould, and blight, which are found at the core of the fruit. On the whole, it is believed that the duty will fall very short of the amount at which it has been set in the Borough. In fact it is a great question whether it will even pay our set of last week, namely, £248,000. They have gone off wonderfully.—*Sussex Express.*

POTATO MARKETS.

BOROUGH AND SPITALFIELDS.

LONDON, MONDAY, Sept. 27.—The supplies of potatoes are less extensive; nevertheless, they are quite equal to the demand, which rules steady, as follows: York Regents, 70s. to 95s.; Shaws, 65s. to 80s.; inferior, 40s. to 60s. per stone. The imports last week were only 30 bags from Hambro'. The accounts respecting the potato disease are rather more favourable.

COUNTRY POTATO MARKETS.—YORK, Sept. 18: Potatoes sell at 6d. per peck, and 1s. 8d. to 1s. 10d. per bush. LEEDS, Sept. 21: A good supply of potatoes, which sold at 3½d. to 6d. per 21 lbs. wholesale, and 6d. to 7d. retail. SELBY, Sept. 20.: Potatoes, 7d. per 21 lbs. THIRSK, Sept. 20: Potatoes, 6d. per stone. RICHMOND, Sept. 18: Potatoes, 2s. 4d. per bush. SHEFFIELD, Sept. 21: Potatoes sell at 4s. to to 7s. per load of 18 stones. MANCHESTER, Sept. 23: Potatoes, 6s. to 9s. per 252 lbs.

PRICES OF BUTTER, CHEESE, HAMS, &c.

BUTTER, per cwt.:	s.	s.	CHEESE, per cwt.:	s.	s.
Friesland....................	114 to	116	Cheshire	60	74
Kiel........................	—	—	Cheddar	60	78
Dorset	114	118	Double Glouc.............	52	68
Carlow......................	100	10[illegible]	HAMS:		
Waterford..................	102	110	York......................	86	96
Cork, ...	98	110	Westmoreland	—	—
Limerick	96	104	Irish	—	—
Sligo.......................	94	110	BACON: Wiltshire, dried	64	66
FRESH, per dozen..12s. 0d. to 15s. 0d.			Irish, green	56	62

ENGLISH BUTTER MARKET.

LONDON, MONDAY, Sept. 27.—We note but little change from last week. Fresh-made Butter is in request at full prices, but stale parcels are neglected.

Dorset, fine	118s. to 120s. per cwt.
Ditto, middling	nominal ,,
Devon	112s. to 114s. ,,
Fresh	13s. to 15s. per dozen.

CARMARTHEN BUTTER MARKET, SEPT. 25.—A fair supply of Butter in market to-day, which was cleared off easily at from 102s. to 104s. per cwt. to farmers.

BELFAST, (Thursday last.)—Butter: Shipping price, 104s. to 110s. per cwt.; firkins and crocks, 11d. to 11¾d. per lb. Bacon, 56s. to 60s.; Hams, prime 80s. to 90s., second quality 60s. to 66s. per cwt. Prime mess Pork, 85s. per brl.; Beef, 120s. to 130s. per tierce; Irish Lard, in bladders, 72s. to 76s.; kegs or firkins, 64s. to 66s. per cwt.

GLOUCESTER CHEESE MARKET.—About 250 tons of cheese were pitched, which large supply proved more than equal to the demand, and therefore, and also in consequence of Worcester fair preventing the attendance of many buyers, trade ruled dull, and lower prices than were obtained at the last market were submitted to. Ultimately almost an entire clearance was effected at the following prices: Best doubles and loaves 63s. to 70s., singles 58s. to 61s., seconds 50s. to 54s., and skim 24s. to 30s. per cwt. About 30 tons, mostly of secondary and inferior quality, left the market unsold.

READING CHEESE MARKET.—There was a liberal supply of cheese, but the quantity bore no comparison with that seen here prior to the establishment of the monthly cheese markets. Half-coward 50s. to 56s, thin Wilts 40s. to 56s., double Wilts 56s. to 70s., fine double 60s. to 77s., Somersets 65s. to 70s., Cheddar 70s. to 84s., and skim 30s. to 35s. per cwt.

GLASGOW, (Wednesday last.)—There were six carts of Cheese in the bazaar, which were bought up at an advance on last week's prices, and 17 tons passed the weigh-house scales. Business was very brisk at the following prices: New, 42s. to 46s.; prime early-made parcels. 49s.; skim, 22s. to 24s. per cwt.

NORTHAMPTON CHEESE FAIR.—A somewhat larger quantity of cheese was pitched than last year, which fetched from 50s. to 80s. per cwt.

CHICORY.

LONDON, SATURDAY, Sept. 25.—We have no change to notice in the value of any kind of Chicory, and the business done has been only moderate.

ENGLISH, per ton	£12	10 to	£ 0	0	ANTWERP	£ 9	10 to	£11	5
HARLINGEN....	10	10	10	15	DACKUM	0	0	0	0
BRUGES	10	10	11	10	GUERNSEY	0	0	0	0
HAMBURG	0	0	0	0	BELGIUM........	0	0	0	0

HAY MARKETS.

SATURDAY, Sept. 25.—SMITHFIELD.—A slow trade, at late rates.

CUMBERLAND.—Supply good and trade dull.

WHITECHAPEL.—A full average supply and a sluggish demand.

At per Load of 36 Trusses.

	SMITHFIELD.	CUMBERLAND.	WHITECHAPEL
MEADOW HAY	65s. to 90s.	66s to 92s.	65s. to 90s.
CLOVER DITTO OLD	85s. 105s.	88s. 106s.	85s. 105s.
STRAW	28s. 32s.	29s. 32s.	30s. 34s.

COVENT GARDEN MARKET.

LONDON, SATURDAY, Sept. 25.—Trade is somewhat improving. Apples and Pears are plentiful. Lisbon Grapes continue to arrive. Melting Peaches begin to disappear, but some good late ones may now be had. Barcelona Nuts fetch 20s. per bushel; new Brazils, 16s. do; Spanish, 14s. do.; Almonds, 24s.; Walnuts kiln-dried, 20s. do. Filberts fetch 26s. to 55s. per 100 lbs. Kent Cobs are coming in very plentifully, and are of good quality—price 45s. per 100 lbs. Among Vegetables are some nice Cauliflowers. Peas are now scarce. Greens are plentiful, as are also French Beans. Potatoes are still largely supplied; many are, however, diseased. Green Artichokes fetch from 4s. to 6s. per dozen. Cucumbers plentiful. Cut flowers chiefly consist of Orchids, Gardenias, Heliotropes, Geraniums, Violets, Mignonette, Heaths, and Roses.

FRUIT.

	s.	d.	s.	d.		s.	d.	s.	d.
Apricots, per doz.	0	0 to	0	0	Pineapples, per lb.	4	0 to	6	0
Apples, per bushel	2	0	5	0	Currants, black, p. ½-s.	0	0	0	0
Oranges, per doz.	1	6	2	6	Do. red	0	0	0	0
Melons, each	1	0	2	0	Do. white	0	0	0	0
Filberts, per lb.	6	0	0	0	Lemons, per dozen	1	0	2	0
Cobs per lb.	6	0	0	0	Pears, per dozen	0	6	1	0
Grapes, per lb.	1	0	4	0	Peaches, per dozen	3	0	8	0
Nectarines, per dozen	4	0	6	0	Figs, per doz.	0	9	1	6

VEGETABLES.

	s.	d.	s.	d.		s.	d.	s.	d.
Cauliflowers each	0	2 to	0	4	Tomatoes, per half-sieve	0	0 to	0	0
Broccoli, per bundle	0	0	0	0	Leeks, per bunch	0	2	0	3
Greens, per doz. bunches	2	0	4	0	Celery, per bundle	1	0	1	6
Seakale, per punnet	0	0	0	0	Shallots, per lb.	0	6	0	8
French Beans, per sieve	1	9	2	6	Garlic, per lb.	0	6	0	8
Asparagus, per bundle	0	0	0	0	Lettuce, cab., per score	1	0	1	6
Rhubarb, per bundle	0	9	0	0	Do., Cos, per score	1	0	1	6
Potatoes, per ton	50	0	90	0	Endive, per score	1	6	3	9
Do. per bush.	2	0	2	9	Radishes, turnip, per doz.	0	0	0	0
Do. per cwt.	4	0	6	0	Horseradish, per bundle	1	6	4	0
Do. New, per lb.	0	0	0	0	Mushrooms, per pottle	2	0	2	6
Carrots, per bunch	0	4	0	6	Parsley, per 12 bunches	2	0	4	0
Turnips, per bunch	0	4	0	6	Basil, green, per bunch	0	0	0	0
Spinach, per sieve	1	6	2	0	Marjoram, per bunch	0	0	0	0
Cucumbers, per dozen	1	0	4	0	Savory, per bunch	0	2	0	4
Beet, per dozen	1	6	2	0	Mint, green, per bunch	0	2	0	4

WINES.

LONDON, FRIDAY, Sept. 24.—In Wines we have no change to note. Advices from the Douro report the gathering there to be in full operation; the quantity is conjectured to range between 25,000 and 30,000 pipes. Great fears are expressed that the quality may be injured by the flavour of sulphur, but of course it is at present impossible to give a decided opinion on this point.

	£	£		£	£
Port, very super. old, pr. pipe	55	65	Clarets—*(continued.)*		
Good old	45	50	Other qualities, per hhd.	20	35
Good young	38	42	Cargo	10	15
Common and fair	30	36	Hermitage, rd. & wh., 1st grth.	40	44
1853's and 1854's	45	50	2nd quality	20	30
Red Wines, from Oporto	23	26	Masdeu, per pipe	28	34
Lisbon White dry	36	38	French Red	16	18
Red	28	32	Champagne, 1st qual., pr. doz.	44s	50s
Do. old	—	—	Other qualities	20s	38s
Bucellas	36	44	Sauterne } 1st quality	44s	54s
Carcavellos	38	42	Barsac } other qualities	22s	34s
Figuera	—	—	Hock, superior, per aum.	£40	£50
Sherry, very superior, p. butt	70	80	Other qualities	20	35
1st class	50	60	Moselle, 1st quality	20	25
2nd and 3rd do.	40	47	2nd quality	10	16
Fair useable qualities	34	38	Madeira, E.I., 1st qual., p. pipe	80	95
Common	20	28	West India, 1st quality	75	85
Mountain, London Particular, per pipe	—	—	Direct	60	65
			Other qualities	—	—
2nd quality	25	30	Marsala	24	25
Lower do.	20	22	Cape White, good	14	16
Spanish, red, good	14	18	Ordinary and common	13	—
Common and fair, per tun	16	25	Cape Red, good and ordinary	22	23
Clarets, 1st growths, 54's, per hhd.	60	70	Teneriffe, London Particular	40	42
2nd do.	40	50	Unenumerated Red	—	—

MATTHEW CLARK & SONS.

SPIRITS.

LONDON, SATURDAY, Sept. 25.—A full average business has been transacted in nearly all kinds of Rum, at full quotations—Proof Leewards, 1s. 8d. to 1s. 9d.; East India and Mauritius, 1s. 8d. per gallon. Brandy commands rather more attention, but grain spirit is heavy.

RUM.

	s.	d.		s.	d.		s.	d.		s.	d.
E. India, proof per gal.	1	7	to	1	8	Jamaica. 26 to 29 O.P.	4	3	to	4	4
Leewards, do.	1	8		1	9	,, 32 36 ,,	4	6		4	8
,, 10 to 20 O.P.	2	2		3	0	Better qualities } 32 36 ,,	4	4		4	9
,, 21 29 ,,	3	8		3	10						
Demerara 30 34 ,,	3	8		4	2	Superior Marks } 36 40 ,,	5	3		6	1
,, 34 40 ,,	4	2		4	4						

BRANDY—COGNAC.

Vintage	Shipped by Martell.				Shipped by Hennessy.				Shipped by Otard.				Shipped by Viny. Proprietors' Company.			
	s.	d.	s.	d.	s.	d.	s.	d.	s.	d.	s.	d.	s.	d.	s.	d
1854	14	0	14	8	14	0	14	6	0	0	0	0	0	0	0	0
1855	12	6	13	0	12	6	13	0	0	0	0	0	0	0	0	0

Hhds. 2d. per gallon higher. Puncheons scarce.

Other Shippers	6	6	to 12	0
HOLLANDS, Geneva fine, for duty	3	8	4	5
Other qualities, to arrive and on the quay	3	2	4	0
BRITISH GIN, for exportation, proof, hhds	3	10	4	9

OIL MARKET.

OILS.

Olive, Florence, half-chests	£0	18	0 to	£0	0	0
Lucca	6	0	0	0	0	0
Gallipoli (252 gals)	46	0	0	0	0	0
Spanish	44	0	0	45	0	0
Linseed (cwt.)	1	12	9	1	13	0
Rape, Pale	2	7	0	2	7	6
Brown	2	3	6	2	4	0
Cod (tun)	34	0	0	0	0	0
Seal, Pale	37	10	0	38	0	0
Do. Brown, Yel. &c	32	0	0	37	0	0
Sperm	84	0	0	89	0	0
Head Matter	87	0	0	90	10	0
Southern	36	0	0	37	0	0
Cocoa-nut (cwt.)	1	17	0	2	0	0
Palm	1	13	0	2	1	0

RESIN.

Yellow (per cwt.)	£0	6	0	0	6	6
Transparent	0	6	0	0	6	6

PITCH.

British (per cwt.)	£0	6	6	0	0	0
Archangel	0	0	0	0	0	0
Stockholm	0	10	0	0	0	0

TURPENTINE.

Spirits (per cwt.)	£1	17	6	0	0	0
In Puncheons	1	18	6	0	0	0
Rough	0	9	0	0	9	6

TAR.

American	£0	0	0	0	0	0
Archangel	0	0	0	0	16	0
Stockholm	0	0	0	0	15	0

WHALEBONE.

Greenland, full size (per ton).	£430	0	520	0	0
South Sea	410	0	0	0	0

TIMBER.

LONDON, SATURDAY, Sept. 25.—Our market continues flat, yet, compared with last week, we have no change to notice in the quotations.

Perload—	£	s.	£	s.		£	s.	£	s.
Quebec, red pine	3	5 to	4	10	DEALS, Yel. Pine, per reduced C.:				
Yel. Pine	3	10	4	0	Canada, 1st quality	15	0 to	16	5
Quebec Oak. White	6	0	6	5	Do. 2nd do.	10	0	11	3
,, Birch	4	0	4	15	Archangel Yellow	16	0	16	5
,, Elm	4	10	5	10	Memel	13	0	14	3
Dantzic Oak	4	0	6	0	Gothenburg Yellow	13	0	14	0
Memel Fir	3	10	4	5	Do. White	11	0	12	0
Swedish	2	10	3	0	Gefle Yellow, 14 ft.	30	0	0	0
Masts, Qubc. Red Pine	6	0	6	10	Christiania, per C. 12 ft. by 3 by 9 in.:				
Do. Yellow Pine	5	0	6	10	Yellow	24	0	28	0
Lathwood, Dantzic fm	8	0	9	10	White	19	0	21	0
Do. Memel	10	0	11	0	Deck Plank, Dantzic,				
Do. Quebec	5	0	5	5	per 40 ft. by 3 in.	1	0	1	10
DEALS, per C. 12 ft. by 3 by 9 in.:					Staves, per Standard M.:				
Quebec Wh. Spruce	9	0	11	5	Quebec Pipe	75	0	0	0
Do. Red Pine	11	10	17	5	Do. Puncheon	20	0	23	6
St. John Wh. Spruce	11	11	15	0	Baltic Crown Pipe	140	0	145	0

LEADENHALL LEATHER MARKET

CROP HIDES.

ENGLISH

lbs.	lbs.		d.	d.
28 to	35	....	14½ to	16
36	40	....	15	17
40	45	....	16	18½
46	50	....	17	19½
50	55	....	17	20
56	60	....	18	21

BUTTS.

ENGLISH.

lbs.	lbs.		d.	d.
14	16	....	16½	19
17	20	....	16½	19
21	24	....	18	20
25	28	....	19	22
29	32	....	20	23
33	36	....	20	23

FOREIGN.

lbs.	lbs.		d.	d.
14	16	....	—	—
16	20	....	16	18
21	24	....	16	18
25	28	....	15	19
29	32	....	16	19
33	36	....	16	19
36	45	....	14½	23
45	50	....	16	24

OFFAL.

	d.	d.
English Shoulders	13	17
Do. Cheeks and Faces	6	10
Do. Bellies	9½	11½
Do. Middles	12	13
Foreign Shoulders	13	15
Do. Necks	10	12
Do. Bellies	8	10
Do. Middles do.	11	12
Dressing Hide Shoulders	10	12
D. do. Bellies	9	10
Kip Shoulders	6	8
Do. Bellies	6	7

DRESSING HIDES.

	lbs.	lbs.	d.	d.
Common	20 to	24	14 to	16
Do.	25	28	14	16
Do.	30	34	14	16½
Do.	35	40	16	17
Saddlers	30	35	16	18
Do.	36	50	17	19
Bulls			11	13
Shaved	14	16	18	19
Do.	17	19	17	19
Do.	20	23	16	18½
Do.	24	28	16	18
Scotch do.	16	24	16	19
Coach, per Hide			30s. to	35s.

HORSE BUTTS. SHAVED.

	d.	d.	d.	d.
English	10 to	11	14 to	15
Spanish	10	11	14	15

HORSE HIDES.

	lbs.	lbs.	d.	d.
English	13 to	18	11 to	15
Do. without butts	9	14	12	14
			s. d.	s. d
Spanish salted, without butts, per hide.	6	9	11 6	14 6
Do. do. do.	9	12	12 6	15 6
Do. do. do. inferior			7 0	9 0
Do. dry do.	6	8	8 6	11 6
Do. do. do.	9	11	11 0	14 0
Do. do. do. inferior			5 0	7 0

CALF SKINS.

Av. weight.		Unrounded.		Rounded.	
lbs.	lbs.	d.	d.	d.	d.
20 to	28	14 to	16	17 to	23
30	35	15	17	17	24
35	40	15	18	17	25
40	45	16	18	17	26
45	50	16	18	17	26
50	55	15	17	17	25
55	60	15	17	16	24
60	70	15	17	16	23
70	80	14	16	16	22
80	90	14	16	15	21
90	100	14	16	15	20
100	120	13	15	14	19

KIPS.

	lbs.	lbs.	d.	d.
Petersburgh	4 to	7	19 to	21
Do.	7	9	17	21
Do.	9	10	16	20
Do.	11	13	16	19
E. Ind. dry sltd.	5	7	19	24
Do. do.	7	9	18	21
Do. seconds			15	18
Do. thirds			12	14
Do. inferior			8	10

SUNDRIES.

	s.	s.
Hog Skins, best ......each	12 to	19
Do. seconds ,,	7	12
Seal Skins, split, per doz.	46	66
Do. for bindings ,,	34	66
Calf Skins, Sumach-tanned ,,	30	45
Do. white ,,	25	35
Horse Hides, white, each	8	13
Sheep Skins—	d.	d.
Basils, unstrained, per lb.	8	14½
Do. strained ,,	8	14
Do. facing, per doz.	5s.	16s.
Tan, Sheep, & Lambs ,,	10	16
White Sheep, per 120	50	90
Do. Lambs, ,,	40	80
Do. Sheep & Lambs, strained, per doz.	5	14
Sumach Roans, per doz.	16	30
Do. Skivers, ,,	5	12
Bark Skivers, ,,	7	12
Hide Splits, per lb.	9 to	11d

BARK, &c.

LONDON, Saturday, Sept. 18.

	£	s.	£	s.
English, per load of 45 cwt., del. in London	17	0 to	20	0
Coppice	18	0	21	0
Dutch, per ton	5	5	5	10
Hambro'	4	10	5	10
Antwerp Tree	5	15	7	0
Do. Coppice	6	0	7	15
Mimosa, Chopped	8	10	9	10
Do. Ground	10	0	11	5
Do. Long	6	0	8	10

	£	s.	£	s.
Cork Tree, Barbary	7	0	7	10
Do. Leghorn	6	0	7	0
Valonia, Smyrna, p. ton	11	0	14	10
Do. Camata	13	0	14	10
Do. Morea	9	0	11	0
Terra Japonica, Gambier	15	0	15	10
Terra Japonica, Cutch	32	0	34	0
Divi Divi	9	0	10	0
Myrabolams	7	0	10	0
Sumach, Sicily, p. cwt.	0	13	0	14

FLAX, HEMP, COIR, &c.

LONDON, Saturday, Sept 25.—For most kinds of Flax, the demand continues steady and prices are well supported. Hemp is quite as dear as last week, but the sale for it is by no means active. **Jute has advanced 10s. per ton, and Coir goods are very firm in price.**

HIDE AND SKIN MARKETS.

LONDON, Saturday, Sept. 25.

MARKET HIDES:	s.	d.	s.	d.
56 to 64lbs. per lb.	0	4 to	0	4¼
64 to 72lbs.	0	4¼	0	4½
72 to 80lbs.	0	4½	0	4¾
80 to 88lbs.	0	4¾	0	5
88 to 96lbs.	0	5	0	5½
96 to 104lbs.	0	5½	0	6
104 to 112lbs.	0	0	0	0

	s.	d.	s.	d.
HORSE HIDES, each	8	0 to	10	0
CALF SKINS, light	2	6	4	0
Do. full	6	0	6	6
Shearling	0	0	0	0
Half-bred Sheep	3	4	4	2
Downs	2	10	3	3
Polled Sheep	4	6	5	6
Lambs	2	9	4	6

WOOL MARKETS.

ENGLISH WOOL MARKET.

LONDON, Monday, Sept. 27.—Since our last report, there has been a full average business doing in this market; but we have no further improvement to notice in the quotations. The present advance induces caution in some quarters; but evidently prices must go higher, there being ample room for enhanced rates.

Per pack of 240lbs.	£	s.	£	s.
Fleeces—Southdown Hogs	£16	0 to	£16	10
Do. Half bred Hogs	15	10	16	0
Do. Kent	16	0	17	0
Do. Southdown Ewes and Wethers	14	10	15	10
Do. Leicester do.	14	10	15	10
Sorts—Clothing, picklock	17	0	18	0
Do. Prime and picklock	15	0	17	0
Do. Choice	14	0	15	0
Do. Super	13	0	14	0
Do. Combing—Wether matching	17	0	18	0
Do. Picklock	16	0	17	0
Do. Common	14	0	15	0
Do. Hog matching	18	0	19	0
Do. Picklock matching	16	0	16	10
Do. Super do.	14	0	15	0

LEEDS (ENGLISH AND FOREIGN) WOOL MARKET, Sept. 24.—There has been on the whole a quiet week, and it seems as if for the present at least a check had been given to any further advance on English wool. Prices are quite steady in colonial, and also in low foreign wool.

GLOUCESTER WOOL MAKET.—About 100 tods came to market, and the whole sold at 16d. per lb. There was also a considerable business done in this article by sample, and about 700 tods were disposed of during the day.

BRADFORD WOOL MARKET, (Thursday last.)—Very little wool has changed hands either to-day or during the week. Spinners having amply supplied themselves for the orders on hand, pause at the high rates now demanded. Prices continue quite firm: bright-haired, if anything, a shade higher. Noils and brokes continue to move off, but the prices never were more out of proportion than at present. There has been more inquiry for Yarns by some of the shipping houses for Russia than for some time past, but their limits are too low to lead to much business. The home houses continue large buyers, and if the present month's prices could have been accepted large contracts would have been placed. Cotton yarns continue in request, and are hardening in price. The demand for Pieces seems now to be about equal to the supply; stocks are all cleared off, and manufacturers well engaged to order. There have been several large buyers in the town, whose purchases, it is said, would have been very extensive if the merchants had been in a position to supply them.—*Bradford Observer.*

LIVERPOOL WOOL MARKET, Sept. 25.

Scotch Wool.—There continues to be a good demand from the trade for laid Highland wool at rather improving rates. White is also more inquired for. Cheviot and crossed wools have not been so much in demand, but holders are not anxious to sell even at present rates.

	s.	d.	s.	d.
Laid Highland Wool per 24lbs.	10	6 to	12	0
White Highland do.	14	0	15	0
Laid Crossed do.. unwashed	13	0	14	6
Do. do.. washed	14	0	15	6
Laid Cheviot do.. unwashed	15	6	16	6
Do. do.. washed	18	0	19	0
White Cheviot do.. washed	26	0	30	0

Foreign Wool.—The sales not taking place so soon as was expected, it has caused a better demand during the week to supply immediate wants, and a fair business has been done during the week by private contract. The public sales will take place here on the 6th October and following days, when 1,500 East India and 4,000 other sorts will be offered.

FOREIGN AND COLONIAL WOOL MARKET.

Per lb.	s.	d.	s.	d.
German, Saxon, and Prussian. 1st and 2nd Elect	3	4 to	4	6
Prima	2	4	3	0
Secunda	2	0	2	4
Tertia	1	8	1	10
Colonial:—Sydney—Lambs	1	5½	2	1½
Scoured do.	1	4½	2	8
Unwashed	0	9½	1	6
Locks and Pieces	0	10	1	9
Slipe and Skin	1	4	1	9
Port Philip—Lambs	1	4	2	1
Scoured do.	1	2½	2	3½
Unwashed	0	6	1	0½
Locks and Pieces	1	1	1	7½
lipe and Skin	0	8½	1	6½
S. Australian—Lambs	1	4	1	9
Scoured do.	1	3	2	2
Unwashed	0	9	0	11
Locks and Pieces	0	7	1	2
V. D. Land—Lambs	1	5½	1	11
Scoured do.	1	5	2	8
Unwashed	1	1½	1	3
Locks and Pieces	1	0	1	6
Cape of Good Hope—Fleeces	0	11	2	0
Lambs	0	11	1	10
Scoured	0	8	1	10
Unwashed	0	7½	1	0

MANURES.

LONDON, Monday, Sept. 27.—The imports of Peruvian Guano last week were 3,900 tons and 130 tons exported.

The demand continues good for Linseed Cakes, and Rape Cakes are very scarce.

PRICES CURRENT OF GUANO, &c.

	£	s.	d.	£	s.	d.
PERUVIAN GUANO, (per ton, for 30 tons) nominal	£12	5	0 to	£0	0	0
Do. Do. (under 30 tons)	13	0	0	0	0	0
BOLIVIAN GUANO none	0	0	0	0	0	0

ARTIFICIAL MANURES, &c.

	£	s.	d.	£	s.	d.
Nitrate Soda (per ton)	£18	0	0 to	£20	0	0
Nitrate Potash or Saltpetre	29	0	0	30	0	0
Sulpht. Ammonia	17	0	0	18	0	0
Muriate ditto	27	0	0	28	0	0
Superphospht. of Lime	5	10	0	6	0	0
Soda Ash, or Alkali	9	0	0	10	0	0
Gypsum	2	0	0	2	10	0
Coprolite	3	10	0	3	15	0

	£	s.	d.	£	s.	d.
Sulph. of Copper or Roman Vitriol, for Wheat steeping	45	0	0 to	47	0	0
Salt	1	0	0	1	10	0
Bones, Dust, per qr.	1	5	0	1	6	0
Do. ½-inch	1	4	0	1	5	0
Oil Vitriol, concentrated, per lb.	0	0	1	0	0	0
Do. Brown	0	0	0¾	0	0	0

OIL-CAKES.

Linseed-cakes, per ton—	£	s.	d.	£	s.	d.
Thin American, in brls. or bags	£10	15	0	£11	5	0
Thick do. round (none)				0	0	0

	£	s.	d.	£	s.	d.
Marseilles	£9	10	0 to	£10	0	0
English	10	10	0	0	0	0
Rape-cakes, pr ton	6	0	0	6	10	0

John Keen, 35, Leadenhall-street,
(Late Odams, Pickford, and Keen.)

Agricultural Chemical Works, Stowmarket, Suffolk.

		£	s.	d.
Prentice's Cereal Manure for Corn Crops	per ton	£9	10	
Prentice's Turnip Manure	"	7	0	0
Prentice's Superphosphate of Lime	"	6	10	0

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THE FARMER'S MAGAZINE.

NOVEMBER, 1858.

PLATE I.

SIR EDMUND LYONS; A SHORTHORN BULL.

THE PROPERTY OF F. H. FAWKES, ESQ., OF FARNLEY HALL, OTLEY, YORKSHIRE.

Sir Edmund Lyons, a roan bull, bred by Mr. Fawkes, and calved December 27, 1855, was got by Bridegroom (11203), dam (Lydia Languish) by Lord Marquis (10450), g. d. (Lovely) by Triumph (8717), gr. gr. d. (Lydia) by Matchless (4438), gr. gr. g. d. (Laura) by Boughton (2868), gr. gr. gr. g. d. Lily by Roman (2559), gr. gr. gr. gr. g. d. by Columella (904), gr. gr. gr. gr. gr. g. d. by Albion (14), gr. gr. gr. gr. gr. gr. g. d. by Cinnamon (139), gr. gr. gr. gr. gr. gr. gr. g. d. by Neswick (1266).

In July, 1857, at the Salisbury meeting of the Royal Agricultural Society of England, Sir Edmund Lyons took the first prize of 25 sovs. in the Yearling Class, against twenty opponents.

In August, at the York meeting of the Yorkshire Agricultural Society, he also took the first prize of 20 sovs. in the same class of Yearling Bulls.

In September, at the Durham county meeting, he again took the first prize, Mr. Wetherell's Statesman being placed second to him.

Sir Edmund Lyons is an admirable specimen of what a shorthorn should be—very handsome, of great size, and splendid quality. Beyond his other good points, his chine and ribs are especially well thrown out; and never, perhaps, did any bull for his age show so well, or promise so much. He is now largely used by Mr. Fawkes for his own herd, which, we need scarcely add, is one of the best in the country. "Fawkes of Farnley" is a name that almost invariably stands high on the list; and at the Salisbury meeting he appeared as the breeder of the two first prize bulls, the famous John o'Groat and Sir Edmund Lyons.

PLATE II.

FISHERMAN.

Fisherman, bred by the late Mr. Fowler, of Erdington, in 1853, is by Heron, out of Mainbrace, by Sheet Anchor, her dam by Bay Middleton, out of Nitocris, by Whisker.

Heron, foaled in 1833, is by Bustard out of an Orville mare. He was a very useful country racehorse, although perhaps hardly ever quite done justice to. Since the decease of Mr. Fowler, Heron has not been advertised as a public stallion, and has not, indeed, we believe, been allowed of late to cover any mares whatever. In addition to Fisherman, however, he is the sire of Moorcock (his only son in the stud), Kingfisher, Oyster-Girl, Whalebone, The Drag, Ibis, Purser, Vestris, Egret, Bull-Finder, Ribaldry, Water-Rat, The Witch, Charlotte, and Sea-Fowl. But there is nothing amongst these to compare with their younger brother.

Mainbrace, bred by Mr. Watt, in 1844, has also thrown nothing worthy of Fisherman. She went into Mr. Fowler's stud in 1848, and produced an own brother to Fisherman, called Purser, the following spring; another own brother, Midshipman, in 1852; and a filly called Wave, by Gabbler, in 1851. On the decease of Mr. Fowler, in the beginning of the year 1853, she was sold at the hammer, in foal with Fisherman, to a Mr. Smith, for 60 guineas, and at once transferred to Mr. Holford's stud. Mareschino, by Peppermint, is all we hear of, here. She has lately been purchased by Mr. Parr.

Fisherman is a dark-brown horse, standing close on sixteen hands and an inch high. He has a coarse head, rather wide between the ears, very strong neck, good oblique shoulders, and great depth of girth. He has a short back, with good back ribs; is high on the rump, drooping towards the tail, which is thin and ragged. His arms are large, and set on forward in the shoulder; he has capital knees and hocks, with plenty of bone; long pasterns, and a somewhat large oval foot. His especial peculiarities are, that the angle from the hip to the round bone is very acute, with a remarkable straightness in his quarters and gaskins, and a rather unusual length of leg. If we couple these with a curious kind of knock-kneed action in walking, the tall gaunt frame of Fisherman is easily distinguishable. In fact, he is altogether but a mean-looking horse, and will rank amongst the more useful than ornamental. He has learnt, too, the great Wantage secret, and, despite his hundred and odd races, is nowas sound as the day he was foaled. A star on the forehead, and some white on the fore and hind coronet, complete the passport.

Fisherman has again changed hands, and is now the property of Mr. Holland.

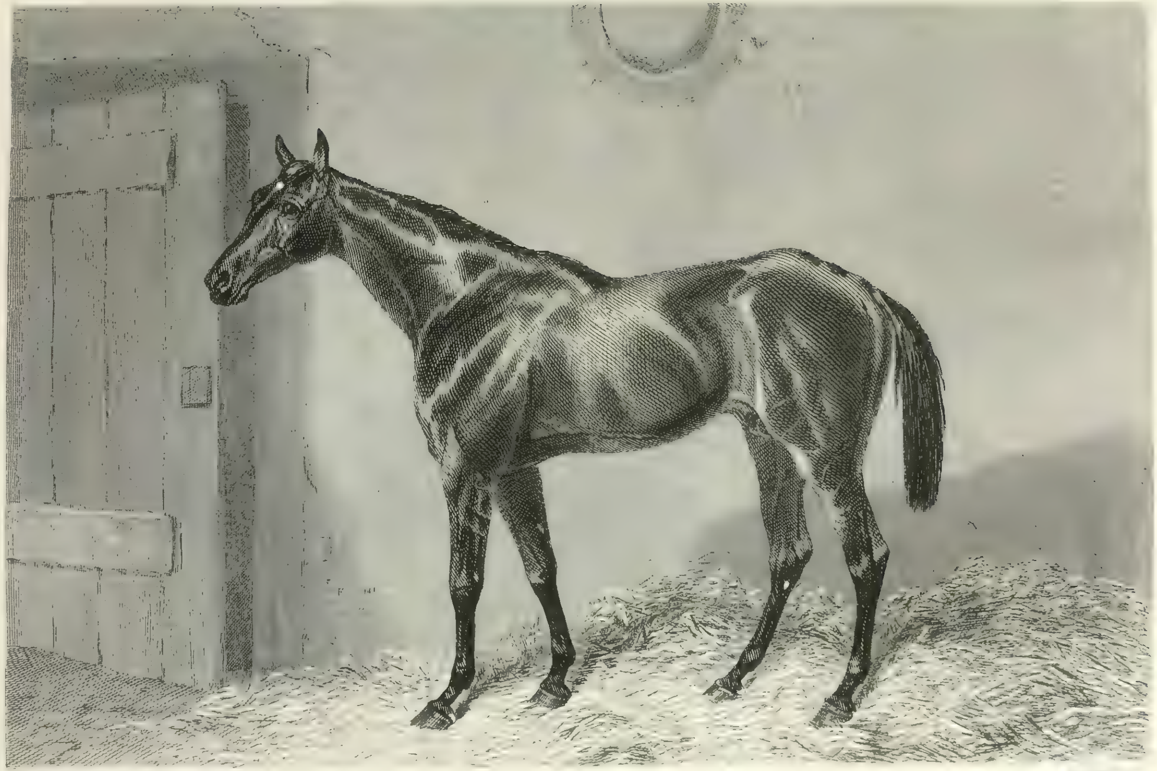
TOP-DRESSINGS FOR GRASS.

BY CUTHBERT W. JOHNSON, ESQ., F.R.S.

Considerable doubts have too long been entertained as to the manures adapted for grass lands: a still more undecided question with many farmers is as to the economy of manuring pasture at all—far too many holders of grass lands do not allow their pastures to have even the benefit of the doubt. Travel where you may, you not only see extensive neglected common lands, and downs, from which age after age the herbage has been withdrawn; but you may note other large upland pastures, to which the oldest neighbour cannot remember that a single cartload of manure was ever returned. Need we feel surprised then, when the owners gravely inform us that the grass on these unmanured lands does not commonly grow so strong as it used to do in their younger days? Ought we not to feel grateful to the great Cheshire farmers when they noted this decrease in the produce of their dairies? and still more were they entitled to our thanks, when, after remarking the loss they were suffering, they were the first to discover and apply a remedy?

These facts ought to insure our early attention—and perhaps more particularly at the present season of the year, since it has been a growing conviction of late, with many large owners of grass lands, that November, December, and January are the months when almost all dressings can be more profitably applied to the land than in the spring. Let us, then, travel together through a little of this kind of evidence, which has been lately offered for our guidance.

First, then, why do we find that grass is more neglected than corn lands? Mr. H. S. Thompson, in a very recent valuable paper, in the 19th volume of the *Journal of the Royal Agricultural Society*, p. 251, endeavours to answer this question. After having truly enough stated that as regards our corn, our turnip lands, the noble cultivators of our islands have well succeeded in making two blades grow where only one grew before, he then asks: "But what of the grass? Few farmers could, we fear, give a satisfactory answer; few could say that they had even tried to do more than keep their grass land up to the mark, that mark being the old landmark of quantity and quality. In short, they have only tried to produce the same number of blades of grass as heretofore. Fifty years ago, previous to the most striking improvements in our arable farming, Arthur Young estimated the best meadow land to produce 5 tons of hay per acre per annum (at two mowings), and the best grazing land to feed an ox of 90 to 100 stone (14lbs.), and 1 large Lincolnshire sheep per acre! Who can say, in 1858, that he has done more? How many can claim to have done as much? Doubtless bogs have been drained, mountains and moors cleared of rocks and rubbish, and many thousands of acres made to grow grass where none, or next to none, grew before; but, taking the great body of the grass land of the kingdom, is it not notorious that farmers—good farmers—men of capital and intelligence, do, for the most part, look at their grass land as a kind of fixture, almost as much so, in fact, as the rooms of their houses? There is a



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parlour here and a kitchen there, and no one would think of letting one encroach on the other; so there is a feeding pasture here and inferior grass land there, and as such they are allowed to remain; and if these lands are not ploughed out or permitted sensibly to deteriorate, this is considered quite good enough management for the grass, even on a farm where the tenant is introducing the most enlightened and excellent management into the cultivation of his turnips and his corn.

"Such general results must spring from equally general causes, and we believe one of the most influential reasons to be, that the returns from capital laid out in the improvement of grass land do not come so directly into the pocket as those from corn, and are apt, therefore, to be underrated or lost sight of. Few farmers sell hay; and if by more liberal treatment of their meadow land the haystack increases in size so as to effect a saving in horse-corn and bring the store cattle into the pastures in spring in a more healthy and thriving state, or if the improvement made in a poor pasture enables the occupier to rear more young stock and in better condition, still the return on the outlay is mixed up with other questions, such as the market price of lean and fat stock at the times of sale and purchase, and it becomes extremely difficult to separate it from the general profit and loss account of the whole farm. In short, the farmer does not put the money derived from the improvement of his grass land directly into his pocket, and he is, therefore, not very sure whether what he lays out in this way ever finds its way back or not. The result of a doubt on such a question it is not difficult to foresee: so the grass land has to content itself with what the half-starved cattle are compelled to leave behind them, added to a liberal allowance of atmospheric advantages, and its continued poverty is a standing proof that these resources are not of the richest, and will not bring us any nearer to the two blades of grass."

Let us, however, get over these cloudy modes of reasoning; let us at least endeavour to *try* if these things can be truly said of *us* and of *our* grass lands; and let us not forget that it is always well and profitable to test the truth of such assertions of men of intelligence and of science. And if we *can* screw our courage to "the sticking-place" amid lowering prices, then let us not forget that many a most valuable trial may as well be made for the outlay of a few shillings, as for pounds, if we will but content ourselves with experimentalizing on plots of quarter-acres instead of commencing with larger portions of the field. It is not the *extent*, but the *care bestowed* to exclude *disturbing causes*, that renders an agricultural experiment valuable. It is this care which causes the trial of Mr. J. B. Lawes to be commonly so noticeable: his results, and those of others with a similar object, are thus alluded to by Mr. H. S. Thompson (*ibid*, page 252)—they well illustrate the well-known and remarkable fact that certain top-dressings most materially alter the quality of the herbage of grass lands. He says: "The sheet of white clover produced by a heavy dressing of lime on moorlands and other inferior pasture, where white clover had scarcely been seen before, is well known to upland farmers, and it would be easy to multiply instances of a similar kind; but none of those I have ever seen can be compared in point of variety and distinctness of result with the set of experiments which has now for some years been carried on by Mr. Lawes in his park at Rothamsted, and which I had the opportunity of examining in June, 1857. There might be seen, side by side, strips of the same old meadow, manured with farmyard manure, with alkalies, with phosphates, with ammoniacal salts, and with various combinations of these substances. By comparison with the unmanured grass adjoining, it would be observed that the meadow in its natural state was one of only moderate grass-growing capabilities, yet some plots were loaded with a crop of the most bulky of our gramineæ, such as cocksfoot, rye-grass, foxtail, &c., all growing with a luxuriance which would excite attention even in a waterside meadow of the first class. Side by side with this might be seen a plot nearly covered with clovers, trefoils, and vetches; whilst the next plot in the series would perhaps scarcely furnish a single head of any of those tribes of plants. It would be difficult for any one who has not witnessed them to imagine the strangeness of the appearance presented by the trial-plots when growing such very different quantities and kinds of herbage, and the difficulty that would be experienced by a stranger, in persuading himself that they were all produced simply by the application of different manures to the same meadow.

The fact being, then, admitted that the pasture *might* be improved, let us inquire "how" and "when." What did the Cheshire farmers discover? What do they use for the almost *permanent* improvement of their great dairy farms? what but crushed bones? The chemist taught them this; he was not to be mistaken here; he was well able to show that the continued removal from the land (in the cheese and in the stock) of its phosphate of lime or bone earth, sooner or later exhausted it of this salt—a salt essential to, and always found in the grasses. The Cheshire agriculturists, therefore, in bones merely restored to the pastures the substance which had, in the bones of the stock and in the milk, &c., been for ages steadily removing. On the importance of this manure, let a Cheshire farmer, Mr. J. Dixon, of Ashley, speak for himself and other Cheshire farmers, as he is so well able to do. In his well-earned prize essay on this very subject (*Jour. Roy. Ag. Soc.*, vol. xix. p. 204) he observes: "For the last twenty years I have had rather extensive opportunities of examining the results from the use of bones, and I have no hesitation in pronouncing them to be pre-eminent above all other manures for the improvement of grass lands when permanency as well as cost are considered. Some farmers prefer them boiled, on account of their more immediate effect, and consider them equally lasting; but from my own experience I am decidedly in favour of raw bones; only allow them to be ground fine, and the effect will soon be evident, particularly if thrown on the land in early spring, and in showery weather. Of the permanent power of the raw bone I can instance a case on land of which I was the tenant for 16 years; it was old turf, and had been in the occupation of the proprietors for a long time previously to my becoming tenant. The extent of the land in question was little more than 20 acres. About the year 1790 the then proprietor had all the bones he could obtain in a commercial locality collected together, and broken with a heavy hammer. No account was kept of the quantity or value used on a given surface, but there is sufficient evidence to show that an unusual dressing was given. The soil is of a close tenacious character, lying on a clayey subsoil. The subsoil did not contain calcareous earth, at least it did not effervesce with the spirit of salts (muriatic acid). Some parts of the land had a more porous substratum, and were sufficiently dry for pasture; these particular parts were undoubtedly the most fertile land in the district. Such of the surface as was wet had scarcely any other vegetable covering than the carex and others of the coarsest grasses. It is, perhaps, proper here to state that this bone-dusted land has not been broken up or in tillage for a very long period. On becoming tenant I immediately set about draining the wet parts. In this operation we found, at from five to eight inches from the surface, much bone, in various stages of decomposition; the large pieces, when broken, appeared fresh inside. I felt at the time some regret that much value must have been lost for many years, and, as I then supposed, for ever lost, on account of the manure having been in soil saturated with water ever since it had been laid on; however, before my draining operation had been completed twelve months, the coarse herbage began to disappear, and in its place appeared white clover, marl clover, and others of the best pasture grasses; and in the second summer after being drained, the soil was equally luxuriant with the naturally dry parts of the land. It is now nearly seventy years since this land was boned, and it is still markedly luxuriant beyond any other grass land in the same district." These facts would naturally lead to the conclusion that other manures containing the phosphate of lime would be also powerful fertilizers for grass land. The experience of many agriculturists testifies that such is the fact. Guano, which abounds with phosphate of lime, is a powerful dressing at the rate of, say 4 to 5 cwt. per acre; superphosphate of lime, at the rate of 6 cwt. per acre, is on many soils a still more powerful application. Then as to the season, many of the largest grass-land farmers dress their land with even farm-yard compost from November to the end of the year. (The objection that the ammonia in the dung escapes by a long exposure to the air, is found not to be so tenable as was once believed.) Some, like Mr. Horsfall, of Burley, when they do this, apply, in addition, 2 cwt. of guano per acre, either in the spring—or, as he observes in a letter to the Rev. W. R. Bowditch (*ib.*, p. 230), "I have derived equal, if not greater benefit, from its application in very wet weather in November. The growth during March was sensibly greater than on adjacent land on which the guano was not applied till April, and the main crop of hay was certainly not less than on that dressed in April." And an Irish farmer adds in the same page: "My experience as to the time of application exactly coincides with Mr. Horsfall's, that December is better than February for guano and superphosphate: almost all the manures I have tried in top-dressing pasture land—as guano, superphosphate of lime, and even saline manures, when applied in spring, did not show their full effect until the autumn; whereas, those applied in early winter seemed to come into operation with the first burst of spring, and be much more effectual." These results of the application of the same manure at different seasons may be verified by my readers; but, however that may be, these valuable experiments all bear testimony to the same important fact, viz., that there are various artificial fertilizers which, when applied to grass lands, produce the most powerful effects. The *long-continued* good result of the bonings of the Cheshire farmers, effects which are said to be perceivable during the continuance of a lease, demonstrates that at least *one* known fertilizer is useful not merely for a season; and, moreover, as the enlightened Cheshire landlords have been long wont even to aid their tenantry in the requisite outlay for the bones, this further seems to prove that the land is not finally rendered less valuable by the more bountiful, and consequently more exhausting crops of grass that it is thus enabled to produce.

MANURES FRESH AND FERMENTED; EXPOSING OF LAND AND DUNG.

During a professional education in the border county of Roxburgh, in which the very best turnip soils are found, and where, in conjunction with the adjacent districts of Berwickshire and North Northumberland, it is generally supposed that the turnip husbandry is most expertly and economically performed, a most certain belief was inculcated that farm-yard dung must be carried to the fields during winter, and placed in oblong heaps about five feet high, in which the materials are thinly and evenly spread, without any pressure beyond the weight of one or two persons to form the heap in the proper structure. In this condition, fermentation proceeds, and reduces the bulk by more than one-third : the state of reduction has reached a moist saponaceous mass that is mostly cold, or sometimes retaining heat in the month of June, when the dung is applied to the land. A vapour sometimes arises from the heap ; but, in most cases, it is cold and thoroughly moist. In North Northumberland, and around Wooler, a further reduction is preferred of the strawy materials, showing a mass of nearly black putridity. It was enjoined, that the drills of land be opened, the dung spread along the hollows, the drills reversed over the dung, and the turnip seed sown, within half an hour from the land being stirred by the drill plough. Extensive farms enable this arrangement being done; and to exceed half an hour is reckoned very bad management. The dung more fresh in condition was spread on wheat fallows, and directed to be covered by ploughing immediately on being spread, in a few hours, at least on the same day.

A removal into South Northumberland found a very extensive practice, on a farm of 700 acres, wholly arable, chiefly in clay soils for wheat fallows, overlying the coal measures, and a portion of very light turnip soils, lying on the parent rock of sandstone that accompanies the coal formation, rises in some places to the surface, and forms the building stones of that country from the Tyne to Tweed, along the sea coast. The above maxims of practice were most carefully executed, under the general direction of a superior in office; but, in which, all the details were left to the guidance of my own superintendence. In such extensive arrangements, circumstances and accidents will occur, to disarrange the continued execution, in short interruptions, and which exhibit results for instruction, if the due notice is regarded.

A partially fermented heap of farmyard dung, that had lain in position from March and April, failed to complete the manuring of a fallow field in August, when the necessary supply was carried from the farmyard in the fresh excrements of horses and cattle mixed in with the straws of litter. The materials were as rough as could exist, and were laid on the fallow ground in the usual quantity, spread and covered by the ploughing. The rough condition prevented the covering of the dung, which laid mostly above ground for two months, exposed to sun, wind, rain, and drought. A most severe rebuke was administered by the general director, for exhibiting such an unsightly and ruinous performance, with a last admonition to never again disgrace the practice of agriculture in such a manner, but rather to leave ground without manure. The seed furrowing of the land in October did not then cover the rough materials, which were torn and pulled about by the harrows, affording a covering to the surface, over winter, in the manner of a top-dressing. When the Spring vegetation commenced, the wheat, in the ground so manured, advanced rapidly beyond the field of land—showing a more vigorous growth, broader leaves, and a much darker green colour, till the full ripening was attained; the superiority was most evident, and visible from the entrance of the field. The stooks of the reaped crop of wheat were thicker on the ground than the general crop; and the pickles of grain were longer, and richer in colour. The practice of subsequent years omitted the fermentation of farmyard dung for wheat lands; but the relinquishment did not sufficiently progress to the necessary establishment of the superiority of fresh over heated matters, as a higher official authority had a command and a restriction. On being shown such a proof of superiority, the general director surveyed and acknowledged; but gave no reason, nor received any change of dogmatical opinion.

My own conviction has led to the opinion that dung be used fresh in the excrements and straws mixed, remain on the surface of the ground over winter, and exposed to the weathers as may occur. Farmyard dung may be best applied to wheat crops in being spread over the young brairds in March, as a top-dressing; and done by means of light waggons, running along moveable railways of timber, placed at proper intervals. A very careful spreading of the dung will cover the ground; and, in four or six weeks after the harrowings, in sowing the grass seeds, will mix the fine upper soil with the wasted fæces—effect a fine mixture of pulverization, very agreeable to the seeds of grasses; and, being pressed together by a heavy roll, a matrix of blended materials will be formed, that is most congenial to any vegetation. In benign climates, the dung may be laid on the ground immediately after the wheat is sown; when it will protect the plants during winter, and confer the benefit of a top dressing, by preserving a warm temperature. No doubt can exist of the superiority of applying farmyard dung in these ways, beyond the common mode of burying it in the furrow, by ploughing in the late summer or during autumn.

In the county of East Lothian, in the South of Scotland, beans are a favourite crop, and are grown in rather high elevations of latitude. The sowing is done in February and March, on lands drilled at twenty-seven inches distant, with fresh farmyard dung spread along the intervals. Changes of weather will occur in these localities, and at that season of the year; and in such cases, farmyard dung has been exposed in heaps in the drills, and even spread thinly along the intervals, bleached by the rain, scorched by the sun, dried by the winds, wetted by the snow, and cramped by the frost, when the crop of beans was superior, or, at least, very fully equal to the usual mode of quick application and covering in the ground. This result has occurred sufficiently often to establish a general fact, in different circumstances of soil and climate. However much these relations may clash with chemical doctrines, such facts are stubborn things.

In turnip farming, accidents occurred to show the same fallacies in the practice that is established in these crack counties of Border farming. In order to finish a field of turnips when the fermented heap failed in the necessary quantity, fresh dung was carried from the door of the cow-shed, and used in the same mode and quantity in the drills of land, when the crop was evidently superior to the fermented matters. Three cases are sufficient to establish the fact, from similar results being done in South Northumberland, Leicestershire, and in South Wales, in which the soil and climate are sufficiently varied to remove any objection. In order to cover fresh dung in the drills, the straws for litter must be cut into short lengths by the power of steam machinery for thrashing grain, which removes any objection on that point.

The loss by evaporation of moisture, by exposing land and dung during the operations of drilling the land and reversing the ridglets over the dung, falls under the same ground of disproval. A varied practice has shown dung and land exposed in open drills for several days of drought, sun, rain, and winds, from the intervention of circumstances to delay proceedings. The turnips grown in these drills showed no inferiority in the braird or crop, and even when no rain fell, and the land and dung were exposed to the hottest sun, not any loss appeared from evaporation of moisture by exposure. On a Saturday afternoon of a very hot season in June, a ploughman was sent to open some turnip drills, in order to have a readiness of work on the Monday morning. The superior in office, then residing in a sea-bathing vicinity, happened to pass the field, and expressed not a little wonder that a Tweed-side education exposed turnip drills to drought for forty-eight hours. A severe reprimand was administered in a tone of authority from a higher official grade. The ploughman smiled, and assured me he had seen many instances of exposing land and dung, without any difference in the crop. And in this case, not the slightest difference appeared. Farmyard dung is not in any way damaged by exposure; nor is turnip land subjected to any loss by evaporation. Mr. Mechi has most truly observed, that the days of dung heaps are numbered.

It was shown that bones, fresh from grinding on the day of being sown in the land, were equal to any preparation, by being fermented with urine, or any liquids with hot lime, or any other matters, or with any reduction by acids to make a superphosphate. This fact was proved in several years of practice. The fresh condition of fertilizing substances exceeds any preparation.

The dogmas of agriculture are closely allied with the scientific reasonings on the subject which dictate and prophesy, from the laboratory and the fireside, the results that will most certainly happen in the field of nature. Nothing can be more fallacious. The same has happened with political theories and commercial regulations, the framing of which merely shows the sandiness of the foundation, and the unskilfulness of the architect: time and circumstances overturn all such baseless fabrics. Railways have not diminished the breeding of horses, nor lowered the prices; the introduction of foreign wool has not extinguished the home production; free trade in corn has not lessened the quantity of arable lands; nor has the abolition of the navigation laws hindered the building of ships or the employment of British seamen. On the contrary, an increase progresses in every point. Vain prophets and false philosophers would do well to shut their open mouths and tie their babbling tongues; to cease talking, and think of acting a rational sobriety and some practical good.

J. D.

A NATIONAL AGRICULTURAL SOCIETY FOR WALES.

The Eisteddfod is doomed. Like the Donny-brook Fair of Ould Ireland, the Lord Mayor's Show of Old England, and other such national celebrations, it cannot but grow gradually out of date. With one roll of its mighty thunder *The Times* has said it. "Why do you not take more notice of the great festival of the Principality?" asks an indignant Welshman. And the very next morning the favour is granted. It is fit season such mummeries were done away with. They do no good, and the people themselves have but little sympathy with the performances. Quondam tradesmen playing at Princes, and country clergymen acting as showmen, scarcely tell in an age like this. It is a question whether "Ar hyd y nos" would not be quite as much respected as "Poor Mary Ann," while it is very certain Jenny Jones would never have achieved half her present popularity had Mr. Matthews sung of her in the language of the Native Bards. Unfortunately, we live in very utilitarian times, and that awkward question—What is the object of all this? is sure to arise. Will Davy Morgan singing "down" Humphrey Owen, or the village school-master being tempted to make nonsense verses in an unknown tongue, do any of them any good? And public opinion shakes its Hydra head dubiously, and rather thinks not.

But the Welsh are an ancient people—a race whose very country may of itself tend to preserve somewhat primitive and peculiar habits. Shall, then, all opportunity be denied them of meeting to enjoy and improve themselves? Shall we pay no deference to the old families and customs? Is there not a chance even of our arriving at some good in so doing? Let Wales still have her own national holiday. Let her sons yet strive in friendly contest with each other. But in doing this, let it be more in the spirit of the days we live in. Let there be a real aim in our assembling together, and let no man go home again, ere he has learnt in some way to benefit himself and his neighbours. It is after all but the clever trick of the Good Genius in the pantomime. The scene opens as usual with the celebration of the Eisteddfod—with the Druids in their robes and crowns—with the Harpers all duly ranged on one side, and their brother Bards on the other. They declaim—they sing—they prophesy—and then, just in the midst of their mystic rites, on comes the good fairy from the wing. It is Ceres sitting in her Boydell Traction chariot. With one wave of her wand, on which are scrolled, in curious character, "Reports," "Essays," and "Prize Lists"—and *Presto!* the whole scene changes! The Druids whisk off their crowns and gowns, and are well-to-do gentlemen, each bearing on his breast a little badge of office which proclaims him a "Steward of the Yard" or a "Judge of Stock." The Harpers at the same moment have dropped their lyres, and are grinding away at patent chaff-cutters, or clearing the corn from improved reapers. The very Bards, that we rather guessed to be clergymen from the first, are clergymen still, but of a very different order—such as Mr. Beever and his brethren—either reciting prize papers from Agricultural Journals—careering up and down on famous hobby-horses, with Suffolk heads, and red to the hoof; or going through wondrous feats of horsemanship on well trained ponies of the old Rûg strain. And then, Ceres is handed down from her chariot by an attendant spirit, known in the bills as "Montgomery Traherne," and coming forward to the footlights, she makes just such a little speech as an Agricultural Deity should do. She craves the sympathy and support of the audience, and she commands it in an instant; retires amidst "immense applause," and the curtain falls on a "great success." After this Mr. Traherne, who is in reality the stage-manager in disguise, comes on with a neat speech of his own, which goes to say that the entertainment "will be repeated every year until further notice."

In sober seriousness, a strong effort is now being made to start *another* agricultural society. It is not enough even that we have so many doing so well, or that the local feed so successfully the more national associations. It is, indeed, another national society that is asked for. England, Ireland, and Scotland have already each its own especial organ. For many years now it has been our pleasant duty to attend the anniversary meetings of all these, and for the good effected by all can we alike answer. We know of nothing that of late years has done so much for the country as these associations. It would be idle, of course, to look to one grand agent for every thing. It has been proved, too, long ere this, how much the shows of our own Royal English have been augmented by the smaller institutions with the same good intent, that now almost everywhere abound. It is the same both in Scotland and Ireland. During this autumn you could not take up a country paper from either of these parts of the kingdom without finding in it the report of some agricultural gathering. The benefit, however, all these are manifestly doing would be comparatively little without the directing influence of the National Society. By this means the good men are brought out of their own homes, while others as good come to them. Look, for example, at our most renowned breeders of stock, or great implement-manufacturers. It would not pay for them to enter at any local exhibition out of their own beat. But they are always ready at the word of a General of an army, when they might not be so attentive to the summons of a mere Captain of his company. Mr. Douglas will send his Shorthorns from the Lothians to Salisbury or Chester, and Mr. Wetherell his bull from the North of England to the North of Scotland. Mr. Beale

Browne's Cotswolds try their fortunes at the Irish shows, and Captain Ball has in turn a nomination at the English. Then the leading firms not only enter for "competition" or "exhibition," but carefully seek out for fresh agents, and a Garrett drill, a Ransome or Howard plough, or a Crosskill clod-crusher, is no longer unknown in the land. But it requires a commanding influence to do all this—just, in fact, such an agency as Wales alone has not, but that the Principality at length sees how much it requires.

It is by no means difficult to trace how this light has been let in. As we wrote this spring, the country has been fairly besieged by the forces of Modern Agriculture. She attacked it at Cardiff in the South, and a few weeks later at Chester in the north. As we also reported at the time, the attempt on either was most encouraging. It was the people of the district who were the great supporters of the meetings. We never saw this more strongly demonstrated than at Chester; while the *habitués* of the West of England Society candidly confessed Cardiff was out of their way, and left it all to the Welshmen. The lesson taught, moreover, has been anything but a fleeting one. A circular letter we published a month since, signed on behalf of the provisional committee by Mr. Traherne, bodily proposed the establishment of a Welsh National Agricultural Society. We think such of our readers as gave it the consideration it deserved will agree with us that it was drawn up with remarkable force and ability—going far, in fact, to prove all it advocated. This is now followed by a second; and that we hear has also been addressed to a majority of our contemporaries in the districts it refers to. It is evident the country is already warming to the proposition; at the same time its reception has been anything but one of indifferent or passive support. Mr. Traherne and his committee have already had a number of objections to reply to. This second letter, indeed, is written chiefly to that end, while it is written so well that we shall not attempt to weaken its argument by doing more than calling attention to it. After all, there can be but one great point to consider—Should it be a Society embracing North and South? Or, as urged by some, of North Wales only? The answer to this is surely self-evident. To be of any useful importance, to command any general influence, such an association must embrace the whole country. The South may, perhaps, not be altogether so forward as the North. There are already good local meetings established about Bangor, Flint, and that quarter. We doubt, though, very much whether there be at present a better or more creditable show of stock throughout the whole of the Principality than that which will take place in a few weeks at Tredegar in South Wales. If we have Colonel Pennant at one point, we have Sir Charles Morgan at another; and certainly the neatest pony exhibited this year was at the Cardiff Meeting.

The iron is hot. The country itself is acting in anticipation, as it were, of such a society: "The unwonted numbers and improved character of stock exhibited this autumn in the various show-yards of South Wales, Herefordshire, Monmouth, are distinctly referable to the reflow of the wave which swept on Cardiff in June." We may turn again to what *The Hereford Times*, in the report of its recent meeting, can say of its own increasing strength. "*A new era seems to have dawned upon its operations.*" The farmers themselves will clearly take their share of the work when it comes to them; but there are many circumstances which warrant us in looking to the landlords and gentry for the initiative. Let them from both North and South go heartily into the venture, and the Welsh Agricultural Society will soon become an established fact.

Sir,—At the risk of being tedious, will you allow us through your columns to make a few further remarks in regard to the scheme for the formation of a Royal Agricultural Society for Wales: a scheme which we shall then be glad to devolve upon a more influential advocacy? We should not ask this favour but that, after considerable expense and trouble, it has been found quite impossible to communicate directly with every gentleman and leading farmer, as we should otherwise have done; addresses and names being so difficult to obtain. Notwithstanding a most favourable reception of the project in the highest quarters, there have risen to the surface a few objections, which we are bound at once to discuss, and if possible dispose of.

1st. It has been said that it might answer to have one central show for South Wales, or one for North Wales; but that a combined exhibition for the whole Principality must fail; mainly because of the difficulty experienced in the conveyance of stock.

This objection might hold good if it were not that it is usual for the railways to grant a free passage and most liberal treatment to animals entered at the shows of the Royal Agricultural Society of England; and we scarcely think that the Welsh lines would depart from this custom in the case of a Welsh national exhibition. On a rough measurement of the map, we cannot find that there are many, if any, spots distant more than thirty miles from a railroad, either in existence or projected: and once upon the rail, what matter then how far? While to those who object thirty miles to be a long way, we can only reply that the farmers of this district think nothing of sending that distance to Sir Charles Morgan's Tredegar show.

2nd. We have read in a North Wales paper the opinion of an eminent agricultural authority, (whose promised communication has, however, not yet reached us), that he thought a central society for North Wales was an excellent idea; but that a combined society for North and South Wales would be a failure, for the reason that South Wales was backward to compete at Chester, and it was likely would be so also at a central show. Surely this argument must cut the other way; if South Wales be stupid enough to desire to add her contributions to a prize fund, for which yet she wants the courage to compete, why what were this but the clearest gain for North Wales?

3rd. We cannot but think that much needless apprehension has been caused by the sentence in our circular, "how far it may be deemed expedient to amalgamate in one central society the existing local county shows." The question we threw out rather as being one which we knew several would come to discuss, who say that they cannot subscribe to two societies, but have pleasure in supporting one, and by no means as an idea of our own, as we have thought from the first that these district societies would go far to foster and be fostered by a Royal Welsh Agricultural Society. After all, deny "the expediency" and the offence is drawn. The paragraph we should, however, have at once dismissed with a monosyllabic tormenter in its ear, had we forseen the uproar it was destined to cause; or, if we had sooner come across the subjoined quotation from *The Farmer's Magazine* for 1838, which even as we write has casually turned up. It runs thus—"We are aware of an idea having been once entertained that a general society would interfere prejudicially with the local societies. Experience in Scotland—and there is no reason why the result should be different in England—has proved the reverse. The local societies have flourished much better since the establishment of the Highland Society." Putting England for Scotland and Wales for England, we endorse this sentence as our own.

4th. One gentleman opposes the scheme on the ground that it is likely to nurse a morbid feeling of Welsh nationality, and remarks that it were better that all distinction between England and Wales be abolished.

We may be excused if we pause to confess that, even supposing a pure race may be absorbed or exterminated —a physiological fact, by-the-way, which authors of eminence deny—we cannot in this instance see the object of the fusion. Why may not the Saxon and the Celt of our island move upon an amicable parallel of honourable rivalry, as continental nations do? The inestimable advantage of free intercourse with enlightened neighbours we are forward to allow; but why so studiously seek, without necessity, to swamp a distinctive genius, which after all may tend eventually to throw new light (for it is a genius of power) upon the various objects of their common scientific investigation?

But to return. "It is the railways," he writes, "that we want." Now this scheme of a Welsh Royal Agricultural Society seems to us—though, after all, 'tis true we may be blinded by an over-weening fondness for our bantling—most excellently calculated to stimulate the formation of new lines through farming districts such as that just opened up the Clwyd; while we can conceive few things adapted better to intermix the Saxon and the Cymry than an annual week of social walk and talk amidst machinery and cattle, where thousands daily come and go in a mood of most joyous inspection.

5th. It is objected that the Welsh breeds of cattle and sheep—the superiority of the ponies none dispute—can bear no comparison with the English importations; that the Anglesey or Castlemartin bullock can by no means maintain its ground beside the Hereford or Shorthorn, Granted, for argument's sake; but are there not districts of vast extent, both in North and South Wales, where—to quote the expressive words of Lord Bagot's agent, lately spoken at the Rhyl meeting of the Denbigh and Flint Agricultural Society—"you might as well look for an elephant as a shorthorn"? It were hard to "keep pace with the expectancy" of some, for we remember to have heard a titled lady ask the guide, on a bleak pass in Cumberland, whether pine-apples grew thereabouts; and our impression is that not more out of place were a pinery on open Skiddaw than the silky coat of "Rose of Athelstane" by the shores of Llyn Arenig; nor less unhappy, in the mists of Snowdon, or by the morasses of the Berwyn, those lovely oval Southdown forms, which you may see Her Grace of Richmond with gloved hand pat so daintily at Christmas time —the hereditary "gold medalists" of Smithfield. On this head, however, we would not be misinterpreted. We do not advocate, as some suppose, the expulsion of the Shorthorn and the Leicester, the Cotswold and the Devon, any more than we would go in for the restitution of the Druids. These justly valuable breeds we should be foremost to recommend upon the rich meadow pasture which a genial climate favours; but at the same time we think it only fair that the highland farmer be encouraged equally with the lowland, seeing that so large a proportion of the Welsh acreage is highland; and we cannot deem it to be absurd, that at least an effort be made to improve stock which, fed by the graziers of Northamptonshire, Leicestershire, and Kent, have already the merit of fetching the best prices of the London market. The question how far the native breeds deserve cultivation, where it is to begin, where to end, and how to be carried on, can only be solved practically; and it is the very question we want to see solved: a solution which can be attained, however, only by the establishment of a national Welsh society, for the Royal Agricultural Society of England will not recognise distinctly the Welsh breeds, and the West of England Society has enough to do at home, while the small local shows are obviously unequal to the task.

On the other hand, let us consider the advantage that must accrue from the establishment of this society.

First, as an immediate consequence, we shall have the best stock of all breeds brought into the country from all parts of the United Kingdom in competition for the prizes, with the certain effect at least of improving the Welsh farmer's eye and taste by the study of animals such as could be nowhere collected but at the exhibition of a national society; besides that, the leading farmers and gentry will have inducement to import the best of fashionable blood for their own and their neighbours' use, an outlay to which they never could be tempted by the comparatively paltry £2 prizes of a country gathering.

Secondly. We shall have a great mart for meritorious, even if not winning stock, such as the largest district show never could afford; attractive not only to the *élite* of England, but, what is of more importance still, to the Australian, the French, the American, the envoys of Hungary and Prussia—all eager to behold and to purchase what may suit, at prices inconceivable on any other occasion.

Thirdly. The small tenant farmers (a class we should encourage) will have more heart to compete at their own country shows, where landlords (after the example of Colonel Pennant) cease to exhibit, being contented with the laurels of a nobler arena.

Lastly, we notice that at most of the recent Welsh meetings it has been suggested that prizes should be given for essays on local agriculture. How much better would this object be attained by the publication of an efficient Journal on the model of those issued by the other national societies, which in itself were worth a guinea!

And, after all, what is it that we seek? To engage you in another South Sea bubble or British Bank investment? A speculation that may cramp your comforts and endanger the inheritance of your children? Nay, rather it is but to contribute one guinea—but a sack of oats from your hunter's stable—but a ribbon from my Lady's drawer; neither of which essentials would you, we will be bound, in three weeks miss. And the consequence, if we succeed—and succeed we must, if once fairly afloat—will be, that for those swampy meadows, alder grown and mossy, which return you but a scant half-crown per acre, you will come eventually to receive your thirty shillings rent. In the room of yon feeble tenant, the despondent owner of an aged blind mare, three cows that live by gipsying, some dozen scabby sheep, a cur, and a "greyhound pig," you will have a thriving, ruddy yeoman, both able and willing to give employment to the hamlet, with the relieving officer "to let." For with stock improved will prices rise, and the farmer be enabled to do justice better to his animals, himself, his servants, and his landlord. But supposing, after all, that upon trial this scheme shall fall through (we cannot, we confess, see how), what harm can possibly have happened but that 1,300 individuals have forfeited a guinea in an effort to advance their country's prosperity; while in vivid contrast view the beneficial results that must inevitably arise from even a single such united meeting. Witness the increased knowledge—the stimulated enterprise—the dissipated prejudices of master and man. Nay, we doubt if any would venture to deny that the unwonted numbers and improved character of stock exhibited this autumn in the various show-yards of South Wales, Herefordshire, Monmouth, are distinctly referable to the reflow of the wave which swept on Cardiff in June.

Our work, as a provisional committee, is now all but done. The ball we have launched; it remains with you, the Press, to keep it rolling. Let the "fiery cross" go forth at once. District meetings should be held as soon as possible, and our efforts clenched.

It is in favour of a large contribution that the surface of Wales is parcelled out amongst so numerous a proprietary, not one of whom would miss a subscription from their annual income. Did not North Wales alone advance £2,000 towards the meeting of the Royal Agricultural Society of England at Chester? What may not, then, the North and South united do, sinking petty jealousies, which but for one journal we should not have believed to exist more than in idea?

Laying well to heart the recent words of one of Europe's sagest rulers, "The progress of agriculture ought to be one of the objects of our constant care, for upon its improvement or its neglect depends the prosperity or the decline of empires" (from the French Emperor's speech on opening the Legislature, 16th Feb., 1857), we need but "a pull, a long pull, a strong pull, and a pull altogether," to set up a noble society upon a footing second to none, and from which it shall never recede. We shall have a mass of most encouraging communications from influential quarters to hand over, on the establishment of a regular committee, though of the issued circulars a large amount yet remains unacknowledged. This does not, however, surprise or dishearten us. A grand project moves slowly at first; and we conclude, not that it is the pheasant shooting, nor the hounds that interfere, nor yet apathy, as some suggest, but simply that

> "The charmed ocean 's pausing."

There wants yet a short period to the turn; but with the county meetings will subscriptions, we doubt not, come racing in at speed.

On behalf of the Provisional Committee,
GEORGE MONTGOMERY TRAHERNE.

Saint Hilary, Cowbridge, Glamorganshire,
October 20th, 1858.

AGRICULTURAL DISTILLERIES.

In a recent number we inserted a letter from the proprietors of the North-end Distillery, at Fulham, in reply to observations of ours, in our Journal of the 13th of last month, on the subject of agricultural distilleries, which it is now proposed to introduce into this country, on Champonnais' principle. In much of what our correspondent advances we quite concur: but there are points which appear to us to be treated *theoretically* rather than *practically*; and to these alone we propose to direct our present observations.

We do not consider machinery and science, applied to the increase of the products of a farm, as calculated to lessen the spirit of agricultural enterprise, but rather to stimulate and increase it, by placing all the operations of the farm, thus facilitated, upon a more rational basis, and superinducing a higher class of mind and intelligence in the operations of the farm. But we *do* consider that, if a farmer goes beyond this, and commences as a manufacturer of spirit from the produce of his farm, he then becomes a commercial as well as an agricultural man, and has his mind distracted between the direct and foreign operations of an intricate and complicated branch of commerce, and the operations of husbandry. There cannot be a greater contrast than that between the processes of the two pursuits and operations, or which require separately a more undivided attention to conduct them to advantage. And we deprecate the introduction of agricultural distilleries, as calculated to draw off the attention of the husbandman from those grand improvements which have set in, and are now in progress, and which demand the undivided skill, capital, and application of every one engaged in agricultural pursuits.

We are quite aware that in those parts of France referred to by our correspondent, agriculture has long been conducted on far better principles than in the south or centre of that country, and with corresponding success. It is only recently, however, that distilleries have been introduced there, as adjuncts to the farm, and the effect on either the agriculture or on the moral and physical condition of the rural population can scarcely be appreciated at present. It required a generation to change the habits of the Austrian peasantry; but we see there, at last, the dreadful effects of the advocated system. And that the disposition to substitute ardent spirits for light wine or water, by the working class in France, is gaining ground (gradually it is true, but *surely)*, I have the testimony of those who have both the opportunity and the discernment for ascertaining the fact. They assure me that the operatives of Paris, most of whom are migrants from the rural districts, are gradually acquiring the habit of repairing to the spirit-shop, instead of the *pump* or café, at meal-hours. We have a high respect for the *opinion* of such men as Liebig; but we cannot admit *opinion* in competition with palpable facts daily staring us in the face, and patent to every man of common observation. We admit that sometimes distress of mind does drive people to intemperance, as it also drives them to suicide; but in both cases we believe there is usually a predisposition to the crime; and it is equally true that the intemperate use of alcoholic drinks reigns chiefly amongst that class of operatives, in this country, who earn high wages, and who, being clever hands while at work, consider themselves entitled to spend a part of their time and money in dissipation of the most injurious kind. The example of Austria, too, is a sufficient answer to Liebig's theory, and a standing illustration of the pernicious influence of agricultural distilleries, which all the theorists in the world cannot neutralize or refute.

With respect to the increased value of the residue of beet-root after distillation, in nutritive properties, if it be a fact that it exceeds in this respect the raw or boiled beet in its original state, it is certainly one of the most extraordinary facts in science, and upsets all the chemical theories hitherto entertained. Saccharine is the basis of alcohol; it is also, or has always been considered, the most nutritive element of plants. If, therefore, by distillation the saccharine is extracted, which is the case, it is contrary to all the received opinions of scientific men that the residue should be superior, or even equal in value, as nutriment, to the perfect root. If this is attributable to the cooking, the same process would be equally useful and more efficacious *with* than *without* the saccharine. We suspect, however, that the "other substances" mentioned in our correspondent's letter includes something more nutritive than chaff or cut straw—a little barley-meal or linseed-cake, for instance—to give a nutritive tone to the residue. Until, therefore, we have a more tangible proof of a "better food" being obtained by depriving the beetroot of its saccharine, without any additions, we shall hold ourselves at liberty "to doot the fact," as a Scotchman would say.

There is an inconsistency in our correspondent's letter in speaking of the effect on prices of the diffusion of distilleries, and the consequent increase of ardent spirits. In one paragraph he admits that prices have been reduced so low as to stop the manufacture, and in the next he denies that the increased production will have any such effect. We cannot, however, admit that the spirit from beet-root will supersede that from grain, except by being mixed with it to reduce the price. It certainly superseded grain spirit in Austria, because, when distilleries were first introduced, the price of grain was so low that its cultivation was discontinued for that of root crops, to be used in the distilleries. But they have again begun to distil from grain, and the quality of the two articles is so different (as regards *flavour* at least) that the one will never come into successful competition with the other when both are made. The duty, too, is so high on both, that the cost price forms only a small part of the price to the consumer; so that it will not admit of a reduction at all adequate to the inferiority in quality of flavour. It will, however, be purchased by the low spirit dealers to be used in mixing, to increase their profit or decrease the price. We therefore adhere to the opinion we expressed, that the manufacture can only be rendered profitable by the increased consumption of spirits keeping up the price, and that unless the consumption does so increase the whole system will be a failure.

We are aware that no spirit can possibly be retailed, under the present laws, at the distillery, nor is it necessary. Instead of selling it themselves by retail, as in Austria, our agricultural distillers must have their spirit shops in every parish, just as the public brewers and distillers have in towns at present. It will be their object to promote the sale of their article by multiplying the number of grog shops as much as the magistrates will allow. As to people caring little for that which "they have within their grasp," experience, we assert, is against that theory. The enormous increase of gin-shops in London and other large towns has *not* decreased the demand for gin. On the contrary, is it not a fact that the multiplication of these pernicious establishments, has been attended with an increase of prosperity to *all* of them? so that, let who will sink, through the spirit of competition, the gin-spinners are the men who play into each other's hands by multiplying the means and incentives of intemperance. *They* are the men who, as a class make the most rapid fortunes, and affect a splendour in their establishments and dress, forming a singular contrast with the victims who herd in sottish brutality under the glare of the multiplied gas burners. Let the same facilities and temptations be extended to the country villages, which would be the inevitable result of the establishment of distilleries as adjuncts to the farm, and we should soon see the rural populations as demoralized and degraded as those of Austria or the large cities of our own country.

We confess that we should like to see the sale of ardent spirits restricted to the druggists' shops, as is the case with spirit of wine, which is only more deleterious in *degree*, not in *principle*. When we reflect upon the enormous quantity of wholesome food for man and beast that is destroyed in the manufacture of the 25,000,000 gallons of this slow poison consumed in the United Kingdom (requiring not less than 2,000,000 quarters of corn), and upon the amount of crime resulting directly from its use, and the misery and wretchedness inflicted upon thousands of families, innocent themselves of any cause for such calamities, we feel assured that society in all its ramifications would be benefited by the discontinuance of the use of ardent spirits. This, and not the multiplication of distilleries, is, we are assured, what every well-wisher of his country and his kind would devoutly wish.

PROFITABLE CULTURE OF THE CEREALS IN HILLY DISTRICTS.

At a meeting of the Galashiels Farmers' Club, held on the first Tuesday in July 1858, Mr. SCOTT sen., of Mossilee, introduced this subject in the following terms:—In the hope of having this question fully discussed in the club by members who have more experience and are better able to do so than I am, I shall offer a few remarks upon it. On the Gala—in some other places in the south of Scotland, but especially on the Gala—from its source to the foot of it, improvement may be seen climbing the hills to their summits. About ten or fifteen years ago, various proprietors and farmers began to open up their eyes so far as to see (and permit me to say, sir, that this was a most important discovery) that there were various tracts of fine lowland that it would be advisable to bring into cultivation. It is needless to waste a single word on the profitable result of that, in hearing of the members of this club. But it is only within the last very few years that what I may call another discovery has been made by some farmers, that it is advisable—and, for my part, I hesitate not to say profitable—that at whatever altitude on our highest hills where the plough can be made to enter, and lime can be taken up, to remove the old comparatively useless sward of bent and heather, and introduce white clover and sown grasses in its place. And I think I may safely say—and I say so from my own experience—that, as a general rule, with some little exceptions, the improvement and comparative profit will be highest where the previous wild herbage was of least value. In so far as cereals are concerned, they may be profitably cultivated, if the soil is suitable, from 800 to 1000 feet above the sea level in this comparatively dry district. The highest part of the new improved land of Mossilee is about 900 feet above the sea. Hitherto it has been quite safe in regard to ripening. I would not recommend, with a view to profit, the cereals to be cultivated in the vicinity of damp moorlands, and in a damp atmosphere, at more than 700, or 800 feet at most; but in a dry atmosphere it may be extended to a 1000, especially if the exposure is favourable. Higher than that, I would rather prefer sowing out without a crop. The pasture will generally do more than pay for the grass seeds the first year, and it will be better in pasture. You will have the acre of waste land, worth, it may be, less than 2s. 6d. up to 7s. 6d., increased up to from 10s. to 20s. The question is not whether, a the high altitude of 1000 to 1500 feet, we can extend the cereals, but whether, from producing lambs of the value of from 6s. to 10s., we may not be able to increase the value up to from 15s. to 18s., and the fleece in proportion of 4 to 6. If I may be permitted to take a glance at the past state of matters, I would say that perhaps nowhere has there been more advancement made than in this district. Take the parish of Galashiels for instance. When Mr. Douglas wrote the Statistical Account of Scotland, near the end of last century, he put down the whole tillage land in the parish at 1200 acres—900 acres of it in oats, the remaining 300 in barley, peas, clover, potatoes, and turnips: only 300 for these five different sorts. The harvest was late, beginning in September, and frequently concluding in November. The number of ploughs in the parish, 37. Again in 1833, when Dr. Paterson wrote the New Statistical Account, some forty years after, the arable land had rather more than doubled. The Doctor put it down then at 3000 acres. But the curious thing is the next entry, opposite which stands a cipher. It is to the effect that there is not another acre in the parish that will pay for cultivation. Who could have expected that from the author of the *Manse Garden?* But I do not think it would be fair to let the onus of this rest altogether on the head of the Doctor, for we are not to fancy that he would not ask the opinion of all the enterprising farmers in the parish on the subject. That was written some four or five years before I came to Mossilee. In spite of this most sagacious opinion a good many extra acres have been cultivated since then, and I suspect in most cases not unprofitably. At that date there might still be seen hundreds of boulders which had formed the landmarks, and the heather and coarse herbage which gave colour to the landscape long before the Scottish kings hunted in Ettrick Forest, which have now vanished, and given place to fine crops of corn and turnips, and to as fine pasture as needs be. I may just further mention, in regard to Galashiels parish, that Mr. Hooper Dawson, of Kelso, when he published his Statistical Account of Scotland, in 1853, put down the arable land in this parish at 3300 acres, being only an advance of 300 acres in 20 years. However, I think we may take it for granted that this is rather below the mark at that date; but we must take into account that the landward part of Galashiels parish is of small extent, amounting to 9850 acres, showing, by last account, just about a third of it cultivated. In the parish of Stow, there are about 40,000 acres. When Sir John Sinclair's statistics were published, the arable land was put down at 3700 acres, 90 cattle fed, and 120 sheep annually out of better than 21,000 then in the parish, while none of the farms had more than three or four acres of turnips. When Mr. Waddell wrote the New Statistical Account in 1843—at least, revised and published then—the arable land had increased to 11,345 acres. This is rather more than a fourth; and I have no doubt but that, by this time, it is likewise approaching a third, if it is not beyond it. The members from that extensive parish will be better able to give an opinion than I am. He gives the cattle fed at 500, which is very respectable; but the sheep have come down to 19,820. This decrease arose from the fact that many of the farms had been overstocked before. Unfortunately, Mr. Dawson has not taken the trouble to get the statistics of these matters in 1853 in the parish of Stow. It is needless to say that all classes of the community are interested in this question. I would say the commercial class first, the landlords next, and the tenants last—(Hear)—because on the tenants generally comes the onerous task of carrying out these improvements; for, how liberal soever the landlord may be, this always involves considerable outlay, and then he has seldom more than eight or ten years, in a nineteen years' lease, in which he can expect to be repaid, while to the other classes the improvement is permanent. The bales of wool are the raw material, which, passing through the manufacturing process in the mills, and coming out in fine tweeds and shawls, gives to Galashiels its importance. So the waste land, for an equally important and profitable purpose, is just the raw material; and it is still stored up in thousands and thousands of acres on the hillsides and vales drained by the Tweed and its tributaries, and that at altitudes which, till late, it has never been doubted would always belong exclusively to the moorfowl and the black-faced sheep.

Mr. A. Thomson, merchant, said he thought Mr. Scott had confined himself to rather narrow limits. Unless a regular series of crops was taken, they could not come to a satisfactory judgment. It might pay to open up a place here and there, but the question ought to be taken on a large scale. A good deal, he believed, depended upon the situation and exposure of the hill. For instance, Buckholm Hill, which had a northern exposure, if cultivated, would not return so well as Meigle, which lies to the sun, and is well sheltered. The northern exposure might raise a good crop of straw, but not of corn. No land could be said to be cultivated without the application of manures, especially farm-yard manure, and it was easier in some places than others to get up manures. Some places were almost inaccessible. Middleton Moor, he instanced, which was well cultivated now, and yielded good crops, he should say was about the same height as Meigle Hill, and there the heights were cultivated profitably, because they were easy of access.

Mr. Geo. Dun, Laidlawstiel, generally agreed with Mr. Thomson. He thought no universal rule could be laid down. Every farmer ought to be left, as circumstances dictated, to pursue his own judgment.

Mr. Hobkirk, Langlee, said he certainly expected, in the discussion, to have got a leaf out of the experiences of those farmers present who had been engaged in breaking-in high land to a large extent. Instead of this, the question had been passed over almost in silence. He could not understand how, in a club of this kind, members who ought to know something of the question, should be so stinted of their information. Many of them had done a good deal in hill cultivation, and they ought to be able to say whether their experiments had been profitable or not. It was rather heartless to sit and witness such indifference. For his own part, he could not add anything to the stock of information, having no experience in high cultivation.

Mr. J. Smail said, he was surprised to hear Mr. Scott affixing such low limits to profitable cultivation. Caddon Head was 2,000 feet (?) above the level of the sea, and yet, to his certain knowledge, it had topped the Galashiels market several times. He believed Mr. Scott to be a man of experience, and that he would not cultivate high ground if it were not profitable.

Mr. Smith, Sunderland, had not yet had time to sum up the results, but had commenced high ploughing, and would by-and-bye be able to give the statistics. He agreed generally with Mr. Scott.

Mr. Brydon, Netherbans, had always found it profitable to cultivate at whatever height.

After Mr. Scott had replied and summed up, he read and moved the following resolution—"That as a general rule, it is profitable to cultivate cereal crops at an altitude of 1000 feet above the level of the sea, provided the situation and exposure be favourable; but if not, an altitude of 800 feet is the extreme limits. That in the counties of Roxburgh and Selkirk, there is no land at such an elevation as to render it incapable of profitable cultivation."

The motion was seconded by Mr. Wm. Haldane, brewer.

Mr. HOBKIRK rose and moved the following resolution, supporting it with some remarks against limiting the height as in Mr. Scott's motion—"That, in the opinion of this club, there is no limit to the profitable cultivation of the cereal crops in respect of altitude in this district, where the nature of the soil and the possibility of approaching it do not offer insurmountable obstacles."

The motion was seconded by Mr. A. FISHER, who took objections particularly to the latter part of the first motion, viz., that there was no land in Roxburgh and Selkirk which would be unprofitable to cultivate. He referred to the great height of some of the hills in the north part of Liddesdale, and in the head of Teviotdale, and also to the different nature of the soils in these uplands, compared with such places as Gala Water and Caddon. In the borders of Teviotdale and Liddesdale, where there were some of the highest hills in the South, some of the highest ridges were so steep that a crow could scarcely sit on the slope, and in others the land was a more level upland table, but consisting of peat haggs and mosses at the top. He held that it was impossible to apply a general rule to places in the two counties so naturally and essentially different. Although Mr. Hobkirk's motion did not embody all his objections to that of Mr. Scott, it was on the whole preferable.

The amendment and motion being put to the meeting, 14 voted for Mr. Hobkirk's amendment, and 11 for the original motion. The amendment was therefore declared duly carried.

HEREFORD AGRICULTURAL SOCIETY'S SHOW.

The *Hereford Times* says, Tuesday, Oct. 19, was the 31st anniversary of the society, and the show was not only the best provincial show we have ever seen, but it surpassed all its predecessors in such a superlative degree that a new era seems to have dawned upon its operations. We may reasonably anticipate a brilliant future for the society if the county men of influence will give it that meed of support which it really demands at their hands, and if the farmers of this our beautiful county are really awakened to a sense of their own interests, and are determined to take and to sustain their proper place in the onward movement which characterizes the present age.

The considerable prize of £25 for the best bull, cow, and offspring brought together a most interesting collection of animals, but several lots which had been entered did not arrive. The magnificent "Sir Benjamin," which now, as the sire, bore the palm from such celebrated animals as "Carlisle," "Arthur Napoleon," and "Young Sir David," was by "Sir David," and was bred by Mr. Benjamin Rogers, the Grove, Pembridge.

But to us the classes for young bulls were the most attractive, for here is the great criterion of the merits of the breed, and the surest sign of its great and continuous improvement. Judges and breeders will bear us out in the opinion, that however good may be the animals which have attained their maximum size and maturity of age, we have only to go a step farther, and view the young stock, and we find that it exhibits still greater excellence, and approaches still nearer to the standard of perfection. It is this continual progress which must in time place the white-faced breed of cattle at the top of the tree. Mr. Perry's "Salisbury," which took the first prize in Class 2, is a superb yearling bull, an opinion in which the reader will fully concur when he glances at the list of competitors. The juvenile bovine hero "Leominster" was cast in the shade, after plucking so many laurels to adorn his sprouting horns; and the combined forces of Messrs. Price, Monkhouse, Lord Bateman, and all the category of distinguished winners were beaten, and fairly beaten, too, as they will all confess. The Judges were not satisfied with awarding the three prizes, but passed an official commendation upon the entire class. The two-year old bulls were not less admirable. The prize bull, "Caret," belonging to Mr. Hill, of Golding, was the darkest Hereford we have ever seen; but we were informed by his attendant that both sire and dam were of a light red colour. He is a remarkably handsome animal, being cleanly made, and capable of much feeding. In this class several animals were commended.

The entire show of horned animals fully bore out the character we have given the principal beasts, and apart from the specific goodness arising from purity of breed or perfection of form which earned for the prize animals the judicial fiat, even the casual observer could not fail to be struck with the uniform actual beauty of the animals. Shapely forms, of fine proportion; rich-coloured skins, some dappled, and sleek as an old maid's tabby; others curly as a negro's pericranium; mild white faces, handsome and almost intelligent; taper legs, upholding finest forms of beef, delighting the eye of the butcher, and promising to gladden the hearts and satisfy the appetites of many in the merry Christmas time. And if one class was more prominent than another in respect to this beauty of form, it was that in which the two-years old heifers were shown (Class 7). A drover bystanding expressed his admiration of these beautiful animals by saying, "If anything licks them, I'm blowed:" and no doubt the unlettered opinion was worth something.

The exhibition of sheep, although far from being so extensive as we could wish to see it, was this year a great improvement upon preceding seasons. The light lands about Ross have long been noted in this locality for the production of a splendid and useful breed of sheep, crossed between Cotswold and Leicesters. The breed was this year represented by some pens of prime sheep, which excited a great deal of praise. The pen of twenty breeding ewes belonging to Mr. Wigmore, of Weston, near Ross, were really first-rate, and those belonging to Mr. Downing, of Holm Lacy, were scarcely behind them. The other lots were all of excellent quality, and last but not least we must notice a pen of pure Shropshire Downs, pluckily shown by Mr. Clement Downes among the long-woolled sheep, and which, though they had no chance in the competition, were, of their kind, a magnificent lot. Some excellent black-faced yearling wethers were exhibited by the Lady Emily Foley, whose prime stock was successful in more than one department of the show. But the conspicuous feature in the show of sheep was the pen of long-woolled yearling ewes exhibited by Mr. T. Beale Browne, of Andoversford, the celebrated sheep-breeder, and the present High Sheriff of Gloucestershire. They were truly magnificent animals.

Of the show of pigs we have little to say. It was not large, nor particularly good: we have seen better pigs at many smaller shows. As no prizes are offered (save in the cottagers' class) for fat animals, we may presume that it is the breed that is looked to; and there is certainly room for a vast improvement in this respect. We want to see compact, fast-feeding pigs take the place of lantern-sided, flap-eared brutes, and although there were some nice pigs in the show, of crossed and mixed breeds, they might have been a good deal better if proper attention was paid to "bacon-culture." There were three cottagers' pigs, the one that gained the prize being immeasurably superior to the other two, but all the animals were meritorious for the trouble which had been taken in preparing them for the knife.

Compared with what it ought to be, the show of horses was a failure. The breeding of useful hacks (which always command good prices) is neglected in this county; and the small competition in the equine classes proves the truth of the assertion. Not but what there were a few really handsome and prize-worthy animals exhibited; but there were very few. The prize cart stallion, "Noble," is of a strawberry colour, with a well-knit frame, not over large, but cut out for work. The prize animals in the other classes were also exceedingly meritorious, and might have stood the brunt of comparison in a much larger competition. Mr. Downes's mare was a real beauty; the foal is by the deceased Presteign horse "Stapleton," of whose merits we have heard much, and whose death is much lamented by the breeders of draught-horses in that vicinity.

Among the extra stock, the most noticeable things were a splendid ram belonging to Mr. T. B. Browne; a fine fat shorthorn cow, with an immense frame, belonging to Mr. C. Hunt, butcher, Hereford; and a pen of prime long-woolled ewes, belonging to Mr. Davies, of Webton.

LIST OF PRIZES.

JUDGES.—Mr. Franks, Thong, Gravesend; Mr. Yeomans, Stretton Court; Mr. Smythies, Marlow, Ludlow.

CATTLE.

For the best bull, cow, and offspring, the offspring to be bred by the exhibitor, and to be calved on or after the 1st of July, 1857, 1st prize, £25, Thomas Rea, Westonbury, Pembridge; 2nd, £10, Lord Bateman, Shobdon Court; 3rd, £5, Thos. Roberts, Ivington Bury, Leominster.

For the best bull, calved on or after the 1st of July, 1857, 1st prize, £20, William Perry, Cholstrey; 2nd, £10, John Monkhouse, The Stow; 3rd, £5, Edw. Price, Court House, Pembridge. The whole of this class highly commended.

For the best bull, calved on or after the 1st of July, 1856, 1st prize, £6, Rd. Hill, Golding, Salop; 2nd, £3, John Williams, Kingsland.

For the best bull, calved previously to the 1st of July, 1856, 1st prize (premium gift of the Rev. W. T. K. Davies), £5 5s., Edward Price, Court House; 2nd, £3, John E. Hewer, jun., The Vern, Marden.

To the tenant-farmer, being a subscriber, who shall exhibit the best lot of beasts, irrespective of sex, bred by himself, and fed without corn or cake, under 2 years and 6 months old, in proportion to the quantity of land that he occupies (premium gift of the Lord Bateman), £5 5s., Wm. Judge, of Ashford (245 acres).

For the best pair of heifers, calved on or after the 1st of July, 1857, 1st prize (premium gift of G. Clive, Esq., M.P.), £5 5s., Edward Price, Court House; 2nd, £3, John Williams, Kingsland.

For the best pair of heifers, calved on or after the 1st of July, 1856, 1st prize (premium gift of Sir H. G. Cotterell, Bart., M.P.), £5 5s., James Rea, Monachty; 2nd, £3, Lord Bateman, Shobdon Court.

For the best pair of steers, calved on or after the 1st of July, 1857, 1st prize (premium gift of J. King King, Esq., M.P.), £5 5s., George Yeld, Twyford; 2nd, £3, Philip Turner, The Leen.

For the best pair of steers, calved on or after the 1st of July, 1856 (premium gift of T. W. Booker Blakemore, Esq., M.P.), £5 5s., to Richard Hill, Golding, Salop; 2nd, £3, to Thomas Edwards, Wintercott.

For the best pair of steers, calved on or after the 1st of July, 1855 (premium gift of Lieut.-Col. Clifford, M.P.), £5 5s., and second £3, Thomas Roberts, Ivington Bury.

For the best four steers, calved on or after the 1st of July, 1855, bred by one person, and to be the property of the exhibitor at the Hereford May fair, 1858 (premium gift of Sir Velters Cornewall, Bart.), £5 5s., Philip Turner, The Leen.

For the best lot of breeding cows or heifers, not under three years old, that have had a calf within six months, or shall be in calf at the time of showing (premium gift of the citizens of Hereford), £20; 2nd in this class (gift of Mr. John Ford, jun.), £5. The occupier, if not exceeding 100 acres, to show two beasts; 150 acres, to show three beasts; 200 acres, to show four beasts; and in the same proportion for every additional 50 acres. 1st prize, John Walker, Holmer, 3 cows (140 acres); 2nd, Rev. Archer Clive, Whitfield, 22 cows and heifers (1,100 acres).

For the best fat cow, of any age (premium gift of F. R. Wegg Prosser, Esq.), £5 5s., Richard Hill, Golding, Salop.

SHEEP.

For the best pen of twenty breeding ewes, of any breed (gift of W. P. Herrick, Esq.), £5 5s., John Wigmore, Weston.

For the best pen of four yearling wethers, long-wool, £3, Charles Kersey, Glewstone, Bridstow.

For the best pen of four yearling ewes, long-wool, £3, Thos. B. Brown, Andoversford.

For the best pen of four yearling wethers, short-wool, cross-breeds not excluded, £3, Thomas Roberts, Ivington Bury.

For the best pen of four yearling ewes, short-wool, cross-breeds not excluded, £3, Lady Emily Foley, Stoke Edith.

PIGS.

For the best boar pig, under two years old, premium £3, Lady Emily Foley, Stoke Edith.

For the best breeding sow that has brought a litter of pigs within four months of the date of showing, or being in pig, shall produce a litter on or before the 19th February, 1859, premium £2. Clement Downes, Eardisley Park.

For the best cottager's pig, premium £1. No cottager to be eligible to compete who is the occupier of more than half-an-acre of land, or whose rent exceeds £6 per annum. Second prize 10s., William Harris, Hereford; first prize William Hughes, Hereford.

HORSES.

For the best cart stallion (premium gift of H. Lee Warner, jun., Esq.), £5 5s. It will not be presented until the October meeting, 1859, as the winner must engage that the horse exhibited by him shall, in the ensuing season, cover regularly in the county of Hereford. Rev. Archer Clive, of Whitfield.

For the best cart mare and foal at foot (gift of Sir E. F. S. Stanhope, Bart.), £5 5s. Clement Downes, Eardisley Park.

For the best three-year-old colt, gelding, or filly, suited for hunting purposes, to have been bred by the exhibiter, or in his possession ten months prior to the day of show, age to be reckoned from 1st January (gift of Mr. W. James), £5. Chas. Hunt, Hereford.

THE STATE OF THE CORN TRADE.

The stagnant state of the corn trade for now several months, and this notwithstanding the absence of supplies from the United States, has occasioned considerable surprise both to those engaged in it and others, who, without any immediate interest except as consumers, have habituated themselves to watch the operations of the market.

There are, however, many causes tending to produce the torpidity, which has for so long a period kept the price of flour from fluctuation. Amongst these we may, in the first place, reckon the result of the late harvest, which has exhibited fewer cases of partial or local failure in the wheat crop than in the average of years; and, although on the light lands some cases of deficiency occurred to a certain extent, no one now believes that the aggregate will be less than an average, the deficiency being made up by the crops on the best wheat lands. Another cause is the great abundance and excellence of the potato crop, a root that appears to have almost surmounted the fatal disease which for upwards of ten years has more or less destroyed the produce. If we add to this the unprecedented supply of vegetables and fruit of all kinds that has supplied in some respects the place of other food, there must have been a great falling off in the consumption of bread. Even beyond these causes the supply of wheat from Northern Europe, although not overwhelming, has been more than adequate to the demand, so that we may readily account for the dulness of the trade.

Whether with continued absence of the usual supplies from the United States, and with short deliveries of native wheat, a revival of the trade will take place when the further imports from the North of Europe are stopped by the frost, remains to be seen. We cannot expect any great advance in prices. Still, whilst taking into consideration the expenses of transit, our prices for wheat are lower than those in America, and even imports from the Continent will scarcely afford a profit. So long, however, as the ports are open we shall get supplies from the latter, as we are now become the store-keepers of corn and other produce for all Europe.

On looking over the returns of the Board of Trade, we find that the imports of wheat, and flour as wheat, for the nine months up to the 30th of September amount to 4,360,182 qrs. It is probable, too, that the remaining three months of importation will nearly make it up the average amount of five millions, unless the frost sets in very early and severely in the Baltic. A good deal of the wheat imported has gone into granary, and is scarcely offered for sale at present prices. It is very likely that the disproportionately high price of both barley and oats will affect the price of wheat in some degree, in the spring. The imports of oats have been large during the last six weeks, but by no means sufficient to supply the deficiency in the crop, which amounts to several million quarters; there is a still greater falling off on the Continent, especially in the south and centre of France, where they did not reap more than one-sixth of an average crop, either of oats or barley. Our imports of oats for the nine months up to the 30th of September have not much exceeded one-and-a-quarter million quarters, being less than were imported the corresponding period of last year. This will account for the high price that grain has borne throughout the season. We have no doubt the price will again rise, as soon as the imports from the Baltic are discontinued, as the demand will then begin to increase with the approach of the winter months and the commencement of the London season.

The high price of animal food is likely to continue, if the state of the continent in regard to fodder and root crops is calculated to affect us. Never were the graziers of France in a more deplorable condition, every kind of winter food for cattle having to a great extent been consumed to keep the stock alive. A great number of lean stock of all kinds have been brought over to this country, the price, which is not more than half the real value, proving a great temptation to speculate in them. Those farmers who are in a condition, from the goodness of their root crops, to fatten largely, will be likely to reap a considerable advantage this season from having been able to buy in their cattle at so low a price. It is fortunate, too, for the graziers that the season continues so open, with moderate rains to promote the growth of the after-grass; by which they will be enabled to keep their stock out of doors to a late period.

REAPING MACHINERY.

By Mr. Alfred Crosskill.

A Paper read at a Meeting of the British Association at Leeds, on Tuesday, Sept. 28th, 1858.

The paper on Reaping Machinery which I read before this Section in the year 1853, at the meeting of the British Association in Hull, contained a general history of all the early inventions for reaping on record, none of which excited any interest, or were generally known to the public, prior to the Great Exhibition of 1851, when the introduction there of two reaping machines from America drew general attention to the subject. Mr. Garrett, Messrs. Ransomes (of Ipswich), Mr. Samuelson, and the father of the writer (Mr. William Crosskill) immediately took a prominent part in introducing reaping machinery into the harvest-fields of this country, (which are much more difficult to operate in than those of America, owing to the crops being much heavier); and Mr. Crosskill succeeded in bringing into general notice, and subsequently into practical operation, a reaper which had been in existence in Scotland, and worked there by its owner, for nearly twenty years, but which, for want of practical knowledge in perfecting its mechanical construction, had scarcely been heard of during that time beyond the limits of the district in which it was originally put together.

The two American reapers, known respectively as Hussey's and M'Cormick's, and the Scotch machine, called "Bell's," after its originator, who was a minister in Fifeshire, were in 1853 the only implements capable of doing any practical work in the harvest fields; and though they have during the succeeding five years been greatly improved, modified, and re-constructed as experience has shown to be necessary to meet the varied requirements of English agriculture, they still retain their distinctive peculiarities sufficiently to divide these reaping machines into three separate classes or varieties, and all the schemes and novelties which have been brought forward since the year 1852 have either failed and been laid aside, or have resolved themselves into variations of one of the three machines first established.

Before describing the fundamental differences in the construction of these three reapers, and briefly indicating the important improvements that have been made in them since their introduction, it is desirable briefly to point out the work which has to be accomplished by an efficient machine for reaping. Most inventors or mechanics who for the first time turn their attention to this subject occupy themselves almost exclusively with the cutting apparatus, apparently overlooking that the convenient disposal or delivery of the cut corn is a very important part of the functions of reaping machines, and has, in fact, been the real difficulty in bringing them into practical use. The cutting parts of all the reapers have for a length of time been sufficiently perfect to encounter successfully every crop that they can reasonably be required to cut; but to obtain an efficient means of delivery has taxed to the utmost the patience, perseverance, and ingenuity of all who have been engaged with the subject, and considerable difficulty has been experienced in perfecting an arrangement that will satisfactorily deliver all descriptions of grain.

The only efficient cutting apparatus hitherto brought into practical use consists of a series of V-shaped knives fixed side by side on a light moveable bar extending across the whole width of the front part of the reapers, and connected by means of gearing and a crank to the main wheels which carry them, so that as they travel forwards a rapid reciprocating motion is communicated to the knives. They pass between and cut against fixed guards or fingers, which support the straw and prevent it from yielding sideways, and serve also to protect the knives from injury on rough and stony ground.

The shape of the knives varies in the different machines; in Hussey's they form a very acute angle with the guards, are plain-edged, sharp, and chop off the straw by means of their rapid motion through the fingers. Mr. Cormick's knife has a serrated edge with an obtuse angle, and requires the aid of a fan or reel to hold the corn in order to cut clean, but it is much more easily worked, more durable, and less liable to choke than Hussey's, and by those who have tried both is generally preferred. Bell's original machine cut by means of shears resembling large scissors; but though very efficient in operation they were found difficult to keep in order, and a serrated knife something like McCormick's was substituted for the shears in the year 1854, and has been successfully used since that time. An inspection of the models will enable anyone to understand the general action of the cutters and guards, and the special difference between each variety of knife is shown by the specimens on the table.

It is worthy of remark in connection with the cutting apparatus, that numerous endeavours have from time to time been made to supersede the necessity of giving a reciprocating motion to the knives, as the reverse action is a source of considerable loss of power, and the tremulous vibration it produces in the machines is a great cause of their wear and tear. All attempts have, however, hitherto failed in producing an efficient cutter having a continuous motion, and in the opinion of the writer there is little probability of their success, as actual experience in the harvest-field seems to prove that the reverse or reciprocating motion of the bar and knives is necessary to shake out from the guards pieces of short straw, grass, weeds, and other substances which constantly collect there, and if not quickly removed soon choke them up and stop the action of the cutters.

The different methods of delivering the cut corn will be best understood from a brief description of how it is disposed of by each machine, beginning with Hussey's, which is the simplest, and may be termed the elementary reaper. In this implement the corn falls, as it is cut, upon a platform behind the knives; a man rides on the box, which covers the wheels and other gearing, and forms a seat for him; and as soon as a sufficient quantity has collected to form a sheaf, he pushes it off the platform by means of a rake with which he is provided. When this operation is performed by a skilful workman on a moderately light crop, which can be managed without too much exertion, it has a particularly neat and tidy appearance, the corn is left in sheaves, ready for binding immediately; and the result is attained by the simplest possible means, as there is no gearing required except that for driving the cutters; and the simplicity of the implement contrasts strikingly with others which have machinery necessarily more or less complicated for effecting the delivery of the cut corn. On the other hand, to do the work neatly and efficiently, requires a man both strong and skilful, especially where the crops are heavy, and such a man is not always to be obtained. It is, therefore, not surprising that this machine is much better liked in America where the crops are generally thin and light than in this country, where on all good farms the weight of the produce is too great to admit of its being readily moved as fast as cut by the unaided strength of a single workman. It will also be observed that the sheaves are deposited on the ground behind the machine, and must therefore be removed out of the way of the horses before they can pass to make the next cut; and in practice this is found a great disadvantage in comparison with the work of the machines with self-acting deliveries, which deposit the cut corn on one side, so that its instant removal is not necessary.

M'Cormick's reaper, as first introduced from America in 1851, resembled Hussey's in requiring a man to ride on it for the purpose of raking off the cut corn, but the gearing was placed before the platform, so that the sheaves could be raked off to the side of the machine, where they were out of the way of the horses when making the next cut; but the work of the man was far more laborious than with Hussey's reaper; and in most of the heavy crops of this country it could not be performed. This difficulty with M'Cormick's was overcome by Messrs. Burgess and Key, of London, who constructed and patented for it a self-acting apparatus for delivering, consisting of three rollers in the form of endless screws, which carry the cut corn off at the side of the machine, and leave it in a continuous swathe ready for taking up and binding. This engraving of the reaper at work shows the action of the screw delivery, and is a very good representation of the implement drawn by two horses and driven by a boy. Since the introduction of Messrs. Burgess and Key's improvements, this machine has been very extensively used; and when managed with proper care and attention, is capable of doing excellent service.

In Bell's reaper, as improved and re-constructed at Beverley under the direction of the writer, the delivery is effected by means of a number of endless bands of vulcanized Indian rubber, fitted with projecting pieces of wood, which carry and deposit it on the ground in a regular and continuous swathe, as shown in the engraving. In the original machine a cloth carried along by pitch chains was employed for this purpose, but the bands are found equally efficient, not so liable to get out of order, and more easily worked by the horses than the cloth and pitch-chains. The large model on the table is fitted with the shears and cloth, as used in the original machine, the small models show the improvements which have been made in it and the form in which it has been practically found to work best.

It will be observed that both the machines, with self-acting delivery, leave the corn in a continuous swathe, which must be raked together for binding, and a practically useful intermittent, or sheaf delivery has not yet been effected by machinery, although several attempts have, from time to time, been made to accomplish it.

A cursory inspection of the models and engravings shows a striking difference in the general arrangement and construction between Bell's reaper, and that of both the American machines just described. In the latter the horses walk by the side of the corn to be cut, and draw by means of a pole connected to one side or end of the machine, a mode of attachment productive of considerable twist or torsion, especially when the work is severe. Bell's machine goes before the horses, and is propelled by means of a long pole passing between them, to the end of which they are harnessed, and by means of which the man who follows and drives them steers the reaper in any direction. This mode of attachment is attended with the great advantage of enabling the machine to deliver the cut corn on either side, while all the reapers which have the horses in front are confined to one side only for delivery and cannot go backward and forward along a field, but must either go round the crop, or, when circumstances render this impracticable, must return idle; on the other hand, machines having the horses in front are somewhat more manageable and easily turned than Bell's, and, in cases of need, a third horse can be yoked in front, which is not practicable when the machine is placed first. For these and other reasons connected with practical convenience, both makers and users of reapers are much divided in opinion as to which is the best way of attaching the horses. Both methods have warm advocates, and it appears probable that until considerably more experience has been gained in the practical use of reaping machinery, and perhaps even after that, on account of the variation in convenience under different circumstances, both methods will continue to be employed.

It will be observed, also, both the machines with self-acting delivery carry in front of the cutters an apparatus called a fan or reel, which revolves slowly as the machine advances, puts back the corn, and insures its falling in the proper direction; an operation which in Hussey's machine is done, when necessary, by the man with the rake.

A general description of reaping machinery would not be complete without an allusion to various ingenious contrivances which have been projected from time to time for the purpose of delivering the cut corn. Through the kindness of Messrs. Ransomes and Sims, of Ipswich, I am able to exhibit a working model of one of these, consisting of an exceedingly curious automaton or self-acting rake, invented by a youth in America named Atkins, and sent over to England in 1853. It was applied to a machine similar in construction to Hussey's, and was intended to deposit the corn on the ground in sheaves; but it has not yet been made to do so in a sufficiently perfect manner to justify its general introduction, although its extreme beauty and ingenuity lead to the hope that it will at some time be turned to account. Another machine, with a very clever contrivance for giving a self-acting motion to a rake for performing the work done by the man on Hussey's reaper, has just been sent over from the United States to Mr. Samuelson, of Banbury, by Messrs. Seymour and Morgan, of Brockport, near New York; it has been named the "Britannia Reaper," and the *Mark Lane Express* and other agricultural journals contained last week accounts of various successful trials that have just been made with it in the North of England. Having seen it for the first time on Monday last, I have been unable to get a model of it for exhibition here, and the mechanical arrangements are so peculiar, that a description of them would be unintelligible without a model. I may state, however, that there is every probability of its turning out practical and useful as well as ingenious, and in the hands of Mr. Samuelson we may rest assured that its capabilities will be fully developed.

In making a few observations on the practical use of reaping machinery, it is necessary to direct attention to the extremely variable and uncertain nature of the circumstances under which it has to operate. A week of heavy rain before harvest will sometimes lay the corn in whole districts, so that it cannot even be mown with a scythe, and it is not probable that machinery will ever be made to work under unfavourable circumstances of this description. It is, however, certain that the reapers as at present constructed are able to render important assistance to the farmer in moderately favourable seasons.

The use of both reaping machines with self-acting delivery is steadily extending; and as agriculturalists and their men become more accustomed to them, their introduction is likely to be still more rapid; for, owing to the high price of labour during harvest, they effect a considerable saving in the cost of cutting the crop, and enable the farmer to take more advantage of favourable weather than he can do by the uncertain aid of the limited number of men that can be procured at that period of the year.

It is also worthy of remark in connection with this part of the subject, that, excepting the locomotive engine, there is no machine in use which requires to be manufactured with so much care and regard to durability as the reaper. Almost all other machines used either in agriculture or manufactures do their work when at rest, and secured to substantial foundations. Even those constructed to move from place to place are, before being put in motion, fastened down to prevent as far as possible the destructive consequences of oscillation and vibration. The reaper is, on the contrary, not only exposed to all the strains consequent on passing over every description of uneven ground with its machinery in action, but it is also subject to the effects of continual tremulous vibration caused by the quick reciprocating motion of the knives.

It is, therefore, not surprising that the introduction of reaping machines has been attended with considerable difficulties, especially as they have had to be worked by men but little accustomed to the use of machinery. In this respect, however, the last few years have witnessed a great change. The assistance of the steam engine is already felt by most farmers to be a necessity in carrying on all extensive operations with efficiency and economy, and the general use of improved machinery cannot fail to produce a corresponding improvement in the condition of the agricultural labourer, and will accelerate the completion of that progressive revolution which, since the abrogation of legislative protection, has been rapidly taking place in every department of practical agriculture.

STOCK FEEDING, &c.

In entering upon this subject, which extends into various sections of practical science, it may be well to take each division in turn, and afterwards sum up the evidence.

There are, in the first place, evidently two grand divisions of the subject; viz., the animals of which it is proposed to increase the flesh; and the vegetable food, which it is the object of the stock-feeder to transmute into flesh, by introducing it into the stomachs of the animals.

As the feeding of stock, and not the breeding, or pointing out their various qualities, is the subject of these articles, particular allusion to the cattle will be unnecessary, as the treatment which will produce any desired effect upon one animal will have, generally at least, a like tendency with another—that is, the best means for fattening one will be the best for fattening another, and the best thing for increasing the yield of milk from one will also be the best for producing a similar result with another, under similar circumstances. Not that it is reasonable to expect that any one kind of food or treatment will produce indiscriminately various or opposite results, and *in this article the present mode of fattening only will be considered.*

The inquiry will, therefore, be commenced with the food itself, showing of what it really consists, and what becomes of it when consumed by the animals.

Vegetables will increase in weight many-fold when growing, without abstracting much weight from the soil, as they derive almost their entire bulk, directly or indirectly, from the atmosphere; which is in some degree owing to their containing in their substance, and absorbing from the soil, very small quantities of salts, &c., which, having an affinity for the gases, fix or consolidate them.

It may be needful to premise, that the elementary bodies, as oxygen, carbon, hydrogen, nitrogen, &c. (of which, except a few salts, of very small amount, all vegetable food is entirely composed), are substances which have never been decomposed, and are presumed to be utterly incapable of being so; for though they may be changed from solid to liquid or even to vapour, they are still identical; thus sulphur may be solid, liquid, vapour, or combine to form acid, and the acid again—with, for instance, lime—form gypsum. But still it exists as sulphur, and may be again recovered, as under no circumstances can either it or any other substance be annihilated.

Yet, one of the earliest impressions in connexion with stock feeding, which strikes the mind of any one who really thinks for himself, is the very small increase of an animal, compared with the large quantity of food taken into its system, and that the balance or loss is not represented by the weight of manure. If we take the following table by Dr. Playfair, given in the 6th vol. of the *Royal Agricultural Society's Journal*, as being the amount of various foods necessary for producing one pound of flesh; viz.:—

100 lbs. turnips	9 lbs. oatmeal	4 lbs. lean meat
50 ,, potatoes	7.1 ,, barleymeal	3½ ,, peas
50 ,, carrots	7.4 ,, bread	3.3 ,, beans,

where does the balance go? Even the flesh, which is almost identical with the product required, is shown to be reduced to one-fourth. Although there is a large quantity of water in the roots, and some also in the meals, it must be remembered that the "pound of flesh" produced, too, is in a moist state.

By drying some of the usual food until every particle of water is evaporated, and noting the proportion of loss in weight, from this may be calculated what would be the weight, when dry, of any quantity of the same kind of food; and experiment will prove that the total weight of flesh added and manure made (both also dry) will not nearly amount to the weight, when dry, of the food given to the cattle.

Though it is quite certain that elements cannot be annihilated, it is equally clear that they have here been lost to the feeder. There are in vegetables the necessary elements of which, when mixed with the air by respiration, to make flesh; and it is only ordinary prudence to prevent, as far as possible, their loss or escape during the process; yet out of say 100lbs. of vegetable carbon, only a small proportion is usually transmuted into animal carbon. But if one portion of the 100lbs. will undergo this change, why should not another portion, or, in short, every other portion, of the whole 100 lbs.? There is only one kind of carbon; it is not capable of being annihilated—it is merely required to change its combinations; and certainly there ought not to be so great a loss in merely, as it were, pouring it from one vessel into another.

The proportions of food wasted and assimilated are purposely left somewhat indefinite; for if the fact of their being a great and unnecessary waste is made evident, the object of the present article is attained, as it is more desirable to point out precisely the source of the loss, and that it may be prevented, than to be critically exact about the amount. In fact, none of the elaborate statements in reference to nutritive properties of various foods, even though made by Sir This, or Professor That, as being the actual result of most careful, and perhaps curious experiments, published by societies or associations rejoicing in the most dignified titles, are any better, for practical purposes, than the observations of sensible persons of less pretension. In practice the results vary: the roots or grain may or may not be in equally dry condition, and different animals have different qualities for "putting up flesh," or the same animal may vary at different times, &c.; consequently, any statement which descended to the utmost nicety would be less useful than another, which although not so correct in detail, examined the subject on broad principles. And as it is now purposed to show how a very large amount of the really available dry elements of food is totally lost, fine calculations are perfectly unnecessary.

Vegetables consist of water, a quantity of matter called gum, sugar, starch, lignine, albumen, and gluten, according as it assumes various appearances, and also of a small quantity of salts, &c., the latter not amounting to more than about 1-500th part of the whole, and of these salts, &c., no notice will be taken at present, nor *until it has been first demonstrated that to the small constituent portions of food are we chiefly indebted for the continuance of life itself.*

The following table will show the proportions of water and soluble solid matter in a few articles as examples, and also of starch, sugar, gluten, &c., in 1,000 parts of the soluble solid matter:

Article.	Water.	Soluble solid Matter.	Mucilage or Starch.	Sugar.	Gluten or Albumen.
Barley ..	80	920	790	70	60
Oats	257	743	641	15	87
Potatoes..	770	230	180	15	35
Carrots ..	902	98	3	95	0
Turnips..	936	64	9	51	2
Clover ..	968	32	29	1	2

The most obvious difference is in the proportion of water; but neither that nor the varying amounts of starch, sugar, gluten, &c., account for the well-known different values for feeding purposes, but which these articles will gradually trace to their true cause.

As for the starch, sugar, gum, &c., the subjoined table will show that they are all nearly alike, or only vary slightly in their composition, and therefore the proportions of these substances contained in any kind of food are not so important as frequently has been represented:

	Carbon.	Oxygen.	Hydrogen.	Nitrogen.
Gum	42·23	50·84	6·93	0
Sugar	42·27	50·63	6·90	0
Starch	43·55	49·68	6·77	0
Lignine ..	52·0	41·25	5·75	0
Albumen ..	52·8	23·8	7.5	15·7
Gluten....	55·7	22·0	7·8	14·5

Before proceeding, it may be necessary to explain that water exists in two states in food as used, viz.: One in which it may be driven off by submitting the food for a sufficient length of time to a temperature equal to boiling water until it has evaporated. The other, in its elementary state as oxygen and hydrogen, as shewn in the table; but whether they are in combination or not is not very clear, nor does it particularly signify, as they occupy about the same compass, and are not in the expanded gaseous form.

By deducting from the figures in the above table the exact amounts of hydrogen necessary to combine with *all* the oxygen to represent the proportions existing in water, there is found a slight excess of hydrogen in each instance. In the cases of the albumen and gluten, there must also be deducted the hydrogen and nitrogen in the proportion to form ammonia; and here again there is still a small excess of hydrogen. *But of this small excess hereafter.*

1. The object is now to show the weighty loss of carbon. With the exception of carbon, all the rest of the food has been shown to consist entirely of water and its elements, and the elements of ammonia, with a slight excess of hydrogen, and a few salts, &c., of no great bulk. Therefore *carbon is the only available bulky matter* contained in the solid part of vegetables, be it termed gum, sugar, starch, lignine, albumen, or gluten; for, in the animal, the oxygen and hydrogen pass off as water. And having now traced out only the bulky disposable element, it will be shown what becomes of it.

Carbon and oxygen have a great affinity for each other, and combine in certain proportions to form carbonic-acid gas, which is elastic, and like all other gases, is volatile, unless there be present something for which it has an affinity, and with which it will combine, and become what is termed fixed.

After its introduction into the stomach of the animal, to use the language of Professor Liebig, " it signifies nothing what intermediate forms food may assume, or what changes it may undergo in the body: the last change is, uniformly, the conversion of its carbon into carbonic acid." The carbon contained in the food is introduced through the gullet into the stomach, and the oxygen contained in the air by respiration through the wind-pipe into the lungs; and eventually they come in contact, form into carbonic acid, and are both removed from the system at every respiration and by every pore. The oxygen is, as a thief, allowed to come in and steal the carbon which the stock-feeder has expended large sums of money to obtain. But if a hare, or other similar depredator, had come into his fields, to rob him of the carbon contained in his crops, he would, probably, have made food of it, and been richer, for having both saved his carbon, and detaining the thief which came to steal it. *So it should be with detaining the oxygen; but of this hereafter.* As the combination of carbon and oxygen takes place in regular and definite proportions, and as the lungs of an animal, under similar circumstances as to exercise, &c., inhale a regular quantity of oxygen, it is also evident that to just saturate or satisfy this oxygen, a certain regular quantity of carbon is required; and it is exactly this amount, which is contained in the food, that is found to keep an animal in a stand-still condition, neither adding to its flesh, nor losing it; *and no carbon can be deposited* (leaving out the action of the small quantity of salts, &c. in the food) *unless a larger quantity is put into the system than there is oxygen taken in to combine with it,* or, in other words, more than the thief can carry away.

It is freely admitted that animals will, and do actually improve in condition, and increase in bulk, by having plenty of good food given to them. So a person may fill a tub with water, though it may leak on every side, if he puts the water into it faster than it runs out of it; but he would do so much sooner, and with less waste of water, by adopting some plan for preventing the leakage. At present our stock feeders might be represented as the Daniades, who were doomed to collect water in buckets full of holes.

The real question is this: Do animals retain all the nutriment contained in a certain amount of food, which it is possible they can be enabled to retain? or is it not true, that out of a certain quantity of food given, a large portion neither shows itself as flesh nor manure, but is lost as gas? This matter has never been properly attended to, and the "agricultural mind" has been so busy with improving the breeds of cattle, that it has not had time to see after the best mode of feeding them.

No doubt there are now greatly improved specimens of stock, which will feed in shorter time and with less expense than could formerly be done; but this is, after all, comparatively a small improvement, for they still absolutely waste and dissipate a large proportion of the dry weight of all their food; and the chief variation from ordinary stock will probably be found to consist in those which are the most rapid feeders, having proportionally the smallest lungs, consequently inhaling a smaller quantity of oxygen, to rob them of the carbon they have eaten. They are, practically, owing to the small size of their lungs, even without restraining their exercise. (in which they would not be disposed to exceed), placed about on a par with the larger-lunged cattle when "tied up" and restrained from taking exercise, or, to speak more to the point, when prevented from inhaling so much oxygen as they otherwise would.

Such cattle are, however, in a low state of vitality, and very subject to disease, and even sudden death; for, not having in their composition that which would retain, by affinity, a good, firm hold on the mass of carbonaceous matter which they have accumulated, merely because of the smallness of their lungs, and their substance being as it were *deposited*, or, at most, held together by *very slight affinity*, they are liable to sudden decompositions, which totally disorganize their whole animal economy.

To sum up this portion of the subject; it is found that vegetation, which in some form is the food of cattle, has grown to the state in which it is generally used, by fixing gases from the air, and by absorbing water (for the present omitting the salts, &c.) It is, therefore, composed of water, and *gases which have been, and may again become volatile.* When vegetables are taken into the animal system, they are decomposed; the water runs off; and *unless there be something present in the body, to absorb and fix the gases, they are volatilized,* and fly away, leaving no increase. It has been stated that the dry weight of food given is not equalled by the dry weight of flesh gained and manure made, and it is thus proved that *a large portion does fly away.*

Yet no pains are usually taken to absorb and fix this gas, which is naturally only fixed in a small degree; because it is the custom for persons to think they do well if they do as well as others, and the feeders of stock are not exempt from this feeling; they do not like to "force" animals, because it is "against nature," &c., when the truth is, that, *to produce further development, it must be produced on exactly the same plan that nature does*—consequently be more in accordance with the laws of nature than the wasteful method now in use. In short, it is helping nature.

Where is science? Where are the chemists? The latter pronounce carbon to be the great constituent both of vegetation and of fat, yet stand aloof whilst pounds of the former are used to produce ounces of the latter. What would be said, and done too, if the coinage was conducted on similar principles, and that a pound of gold only produced an ounce of gold coin? Is it not probable there would be some investigation of the fumes which ascended the chimney of the furnace, and, if it proved that the precious metal was thus carried off, that some endeavour would be made to condense those fumes and recover the gold?

In a future article the means of preventing this extravagant waste will be pointed out; but as it is most desirable to make good the ground already gone over, a week or two will be allowed to elapse, that any objections which may be offered or errors pointed out *in the principles, so far as at present stated,* may be considered, and either refuted or amended.

George H. Bolton,
Warrrington. Agricultural Chemist.

THE NORTHAMPTONSHIRE AND BEDFORDSHIRE AGRICULTURAL SOCIETIES.

The Northamptonshire Agricultural Society, like that of the adjoining county of Bedford, now becomingly represents a district famous for a spirited race of farmers. Either of these associations must trace its success to the plan of uniting the forces of the whole Shire in one general body. A very short experience has been sufficient to show how preferable this is to any subdivision of North and South, or yet more limited and local operation. Northamptonshire has never yet known so good a meeting as that just held at Towcester; and this we believe is the first year of the thorough amalgamation of the North and South. The original institution itself goes back to a very classic era in the history of British agriculture. It was founded by Lord Spencer, the leading man of his day in all matters relating to rural affairs, and for a considerable period, was kept well to its proper use and purpose. The battle of protection, however, split up the people into parties; and a second association was speedily established. The two have tried hard for some time to live each other out; but, fortunately for either, the cause for any continued hostility has been the first to die away, and the two sides have now joined hands again over their one common object—the encouragement and improvement of the agriculture of the county.

We repeat that such a union could not have been cemented under more encouraging auspices. The meeting had not only the thorough support of the farmers, but was equally well backed by the township in which it was held. In fact, the arrangements of the local committee, with Mr. H. P. Jones at their head, were such as may well afford an example for other places the society will take in its circuit. Towcester offered not only a hearty welcome and a good site, but with it a series of premiums from its own funds, as liberal in amount as judicious in application. The business of the occasion lacked indeed no incentive of this kind. There were prizes for ploughing—with classes for farmers' sons or pupils—for men in the employment of members—for ploughboys—and an all-England class, with a piece of plate, value £10, from the town fund, to the owner of the winning team. His Grace the Duke of Bedford took the latter; his man, George Brown, having been acknowledged to have done the best, in a great deal of excellent work. In nothing was the day's proceedings more creditable to the county than in the prize ploughing. Then, there were premiums for shepherds and other labourers, for fathers of families, and for domestic servants; while the other division of the catalogue included breeding and store stock, draught and riding horses, sheep, pigs, and a strong show of poultry. The cattle of the county are here, again, the shorthorns, of which there was both a large and good entry. Many of the landlords and their tenantry are evidently going into this branch of the business with great spirit. The second prize bull, the property of Mr. Harrison, was bred by Mr. Fawkes, of Farnley; although he would hardly bear comparison with the grand animal of Mr. Elston's that beat him. One was certainly twice the age of the other, but the first prize beast will be always difficult to catch. The strength of the county was materially assisted by the herd of a neighbour—Mr. Robinson, of Clifton—a very rising man with the shorthorns, and who had it nearly all his own way with the heifers, exhibiting some of really first-rate quality and promise. Mr. Robinson's appearance here was considerably to the detriment of the stock show of the Bedfordshire Society at Biggleswade the day following, where, instead of being as last year a prominent exhibitor, he was content to act merely as judge of other people's animals. It was to be regretted there was not a little more time between the two meetings, especially as this means of comparing the strength of the two counties may be both interesting and mutually advantageous.

A very good show of long-woolled sheep was made up from the flocks of Mr. Shaw, of Hunsbury, Mr. Lovell Cowley, Mr. Brooke, and Mr. Redgrave, who go again and again to such men as Mr. Sanday and Mr. Spencer for what they want in this way. Mr. Thursby and Mr. Marriott have a lead with pigs, for the excellence of which Messrs. Wiley and Watson stand responsible. It will be gathered from this that all the best breeds of cattle, sheep, and swine are now carefully cultivated in Northamptonshire. In the matter of horses, the county can afford to stand on its own merits. The "shire" draught-horses have a repute of their own, while the farmers made up at this Towcester meeting a very creditable show of hunting-mares and foals. In a flying county like this, they go more for blood than agriculturists generally take to; and with some quite thorough-bred dams there was scarcely a foal but was by a horse of some character. Perhaps the lion of the whole exhibition was a two-year-old hunting-colt, the property of Mr. William Shaw, of Coton, which has now taken the first prize at every meeting he has been entered—that is, at Grantham, Manchester, and Towcester. For his age, he is really a most extraordinary animal, standing quite sixteen hands high, and looking far more like a well-grown three-year-old than what he is. He abounds in the good points of a fashionable hunter, with a neat lean blood-like head to begin with, a capital shoulder, and great depth of girth. He might have a little more bone below the knee; but, as it is, has nothing to do but to fill out and furnish, to make a very long price. This colt is by the Ugly Buck, as is the foal out of Mr. Wallis' hunting-mare; and clever as is the latter, the young one promises far to excel her. Lord St. John sent a capital cart-mare, and Mr. Manning a young chesnut stallion, with a wonderfully good back and quarters, and other points to match, that told at once in his favour.

As with most of these gatherings, the worst feature of the proceedings was the dinner. And this, be it understood, notwithstanding that the room was crowded, and there being a positive superabundance of good things. For five shillings there was—including a dessert—fish, and soup, and joints, and poultry, and pastry, and game, and venison, sent ready dressed, and really hot in its coating of paste, from Fawsley, by "that fine old English gentleman," Sir Charles Knightley. But alas! as usual, there was no attendance. With half-an-hour or so between the courses, it took nearly two hours to get through the eating part of the entertainment; while the after-dinner proceedings, so far as we witnessed them. were as slow and as tedious as it is possible to imagine, There seems to be a positive ingenuity exercised on these occasions to introduce toasts and sentiments that have the very remotest connexion with the business of the occasion. For instance, they drank "The Lord Lieutenant of the County," with "cheers" of course, and we heard one man (bred and born in the county) ask another who the Lord Lieutenant was? As a rule there is a terrible deal of dead weight to be got through, and unfortunately we had to leave before the excitement began. This was nothing more nor less than a row, which thus originated:—Sir Henry Dryden rose to propose the Judges, and in doing so said—"Amongst all the prizes, he was surprised to see they had no cups for twitch, docks, thistles, and nettles. What! no prize for the staple commodity of South Northamptonshire? (laughter.) Did they not give a medal to the patriotic gentleman who had turned twitch into paper? (General Cartwright: 'And failed.') He had passed the place, and saw a large stack of it. The paper was, he believed, as brittle and as tender as it could be; but what did that matter if they could sell it? (laughter.) General Cartwright said Mr. Mechi wanted to live to see every farmer pay £3 an acre. He (Sir Henry) had been through England, Ireland, and Scotland, and he must say that that district (South Northamptonshire) was the worst farmed and lowest rented of any in her Majesty's dominions (laughter, cheers, and cries of 'No, no.') That was the fact, and any one who had travelled through the same places as he had done would come to the same conclusion (No, no). It was not only the worst farmed district, but was also the lowest rented, and if they would find better land he should very much like to go and see it (Hear, hear, and marks of disapprobation.)"

Then up rose Mr. Beasley the younger, for "He could not sit down tamely under the slur that had been cast upon them by Sir Henry Dryden's imputation ('Hear, hear,' and cheers). That was a meeting where friendship and good fellowship should prevail, and where nothing that was calculated to disturb the harmony of it should be allowed. He would say, then, that if any one said the farming of South Northamptonshire was bad, he said that which was untrue; or if that was too strong a word, which was a mistake ('Hear, hear,' and great confusion). A gentleman who held an estate in the county as Sir Henry Dryden did, ought to be the last to come forward to cast imputations on the farmer (A voice: 'Give it him!') Let them ask any stranger amongst them if such a discreditable state of things existed in the county, and he would tell them that it did not ('Hear, hear'). Northamptonshire was the last place they would think of going to to look for twitch ('Hear, hear,' and discordant sounds of approbation and dissension). Let a prize for the best farm be given, open not only to the county, but to all England, and he would lay a strong wager with Sir Henry Dryden that the prize was carried off by Northamptonshire ('Hear, hear,' and cheers. A voice: 'That's a silly bet.'). He thought the feeling of the meeting was with him, that by what Sir Henry Dryden had said he meant to bring degradation upon the county in which he lived; and he did not hesitate to say that his insinuations were utterly false and untrue (cheers, and loud sounds of disapprobation)."

Next, a stranger, who waved a white hat, "could find plenty of twitch in Northamptonshire;" but significant cries of "Turn him out" ultimately brought the unknown to order. After this Sir Henry obtained leave to explain:—"All he meant to say was, that *the land was the lowest rented, and the worst farmed.*" He accepted Mr. Beasley's bet of course. And then Mr. Reginald Knightly asked to stand in with Mr. Beasley —and then the Vice-Chairman expressed his anxiety to know "whether they were going to all talk at once, or to hear one another in turn?" They evidently never quite settled down again, and so we gather these as the great results of the Towcester Meeting—that the tenants are amongst our best breeders and feeders of stock, and, as their landlords say, about the worst farmers in the kingdom! It is, altogether, a matter that will bear a little more investigation.

It has already been intimated that the success of the Towcester Show was achieved somewhat at the expense of that to be held in the adjoining county on the next day. In fact, in no respect will Biggleswade bear comparison with what the Bedfordshire Society did at Leighton Buzzard last year. The ploughing was generally not so good, the exhibition of stock was as generally not so good, and the dinner with its concomitant proceedings was infinitely inferior. The one strong feature of the occasion was the display of sheep —Mr. Charles Howard showing some extraordinary Oxfordshire Downs, by far the best we have seen for some time, and Mr. Pawlett one or two of his famous Leicesters—the Chester prize tup amongst them. Next in excellence was the entry of four-year-old hunters, for which Mr. George Higgins again stood first with an own brother to the horse that took the premium last year. They are by Minataur, a stallion that has left some very good-looking stock in the county; and Mr. Higgins' horse is a fine stylish Leicestershire sort of nag, that will do his sire every credit. The Messrs. Fowler had the run on the shorthorns, notwithstanding the vicinity of the Squire's herd at Stratton. But somehow the latter did not show to advantage, and even the hounds were scarcely fit for "the flags," having had a very hard morning's work amongst the cubs the day previous. Curiously enough, the best ploughing, as at Towcester, was not in the Champion class; in fact the latter was never perfected. Only two men finished their half-acre in the three hours and-a-half allotted, and neither of these went sufficiently deep. In plain truth, the ground worked very heavy for the horses, and with no drivers it was rather difficult to keep them going straight and pleasantly. Even all things considered, Smith's Steam Cultivator in action on a piece of rough land of Mr. Barnett's, was the attraction of the field. It appears day by day to be increasing in favour with those whose opinion is so essential to its success—the farmers themselves.

A custom now almost obsolete is still observed at the meetings of the Bedfordshire Society. The list of prizes is not merely read over at the dinner—which if it be done smartly and audibly, as Mr. Turneley can do it, is a very proper proceeding—but every man who wins a prize of any description is called up in turn to receive it from the chairman. An immense deal of time is cut to waste in this way: no possible good can come of it; and really the only apparent object is to bother the unfortunate President, who is expected to say something "appropriate" to each of the recipients. Beyond this there was certainly nothing "remarkable" in what we heard at the dinner. But we did not stay it out; and by the numbers we met on the platform of the station there were many more who left after a four hours' sitting. The only business-like address we were in time for was the Secretary's, on the financial condition of the Society; while Mr. Barnard, one of the members for the borough of Bedford, made his point of that great "benefactor who had made two blades of grass grow where one grew before"—and Colonel Gilpin, who fills a similar post for the county, declared "the less Government legislated for the farmer the better." The county member has generally had an easy time of it, and according to this reading he has really little or nothing to do. But we hardly agree with the gallant Colonel's estimate of his duties as a representative of the agricultural interest.

HALESWORTH FARMERS' CLUB.

The monthly meetings of this club were resumed on Friday evening, the 24th Sept., Mr. John Cooper presiding. There was a fair attendance of members.

The subject for the evening's discussion—on drainage—was introduced by Mr. Robert Bond, Secretary to the Suffolk Agricultural Association, of Kentwell, Long Melford, and Thorington, Saxmundham. The ability with which the introducer presented the subject before the meeting elicited the heartiest applause, and many encomiums at the manner in which he had so successfully worked in the cause of agriculture.

The CHAIRMAN having introduced the lecturer to the meeting,

Mr. BOND said: Mr. Chairman and Gentlemen,—It is with pleasure I appear before you for the purpose of introducing the subject of drainage for this evening's discussion; and I presume we meet here to give our own individual experience in preference to quoting the published opinions and statements of the great and antagonistic leaders upon the questions of deep and shallow draining. I shall, therefore, adhere to the accounts of my own doings and my own conclusions, knowing well that your kindly feeling will absolve me from the charge of egotism, to which I do not fear in this case to expose myself. I only desire to see the subject divested of dogmatism, and resolved into sound and safe principles of action, that science and practice may not be disunited. Hitherto drainage discussions have been too much the battle-field of opposing parties, who have aimed rather at the triumph of their own pet dogmas than at a calm philosophical deduction—it has never been the arena of insipid unanimity, and I trust this evening we shall have that friendly dissent which excites discussion and leads to the general experience. We want to advance the subject, if only one step, toward the solution of scientific truth; but it will be as well for us to bear in mind that it has ever worn a cameleon hue, which for a practical demonstrative question can only be accounted for by the fact that diversity of soil and climate admits of correct and equally truthful variations in opinion and in practice. Where physical condition is the same, we can probably square ourselves to one notion, and agree upon depth and distance of drain; but physical differences as to subsoil, climate, and inclination, create practical differences in treatment. We may not attempt to discover a universal panacea for every ill applicable to the entire kingdom; this has been our vain and fruitless aim, but, as in physic so in drainage, we can have no Holloway's ointmen or Morrison's pills for the cure of all hydropical disease. We must vary our treatment according to our patient; but it is for us to pronounce our opinion as to the best system suited to this our own locality. To revert once more to the controversy for universal principles, we have often been interested to observe how fully the fashionable world of agriculture has followed a leader, and propounded the doctrine of deep drains at wide intervals, even in the spirit of a Cochin China mania; whilst the advocates for a shallower system at closer intervals have borne much condemnation whilst adhering to their principles, and they have in reality been somewhat prejudiced against all opposing claims. I mentioned I would confine myself to my own experience, but it is desirable I should inform you what that experience is. I have practised the different methods of drainage at various depths on different characters of soil, and my operations have extended over an area of upwards of one thousand acres of land, and containing in lineal measurement five hundred miles of drains. I have, therefore, necessarily devoted much time and thought to this subject, and it is one in which for years past I have felt considerable interest.

As to the advantages arising from draining, they are so self-evident that I need not enlarge to any extent on this point; let us remember, too, as Suffolk men, that if our forefathers were not the inventors of the art, they at least were amongst the foremost largely to adopt the practice and to appreciate its usefulness. Drainage is undoubtedly the foundation of all improvement, and I know of no greater agricultural revolution by art or nature than the effects of good sound drainage upon wet clay lands. Only let us consider for a moment its effects from our own observation. We can recal to mind the actual state of an undrained, thin-skinned, cold, clay farm. Can anything look more uninviting, or present a more unpromising and unproductive appearance? It has the very aspect of barrenness; whilst its water-logged, sodden surface, covered and infested with every species of water-loving semi-aquatic weed natural to the soil points out the cause of its condition. Take it in its cultivation; 'tis labour! labour! labour for man and beast, the result unrequited toil, and the effect upon the soil but an exchange in the extremes from homogeneous mud to baked brick earth. And what is the produce but a stunted and scanty yield, with its narrow rows of dwarfed straw and puny ears. Nor can we wonder at such results, for our cultivated plants require moisture and not saturation, percolation and not stagnation, heat and not cold, aëration of the soil and not suffocation, friability and not compactness, manure and not poison. I have before said that drainage is the foundation of all improvement; without *it*, cultivation and manure are of but little avail; and I have observed upon such undrained farms that master and men, horses and cattle, buildings and fences, usually present the appearance, and apparently imbibe the air, of the surrounding property. I can well understand that a mismanaged impoverished farm produces poverty in the purse, parsimony in the outlay, ill-paid labourers, half-fed stock, and all ditto to match with the " Hungry hills, "" Van Diemen's fields," " Upper and Lower Wilderness," which are the appropriate cognomens of such wretched spots of mismanagement and slavery. Drainage, then, is the main point; it is desirable; it will pay. Why, by that one operation we remove the very poison and preventive of fertility; we remove the curse to our corn crops, and the food of the semi-aquatic weeds; we reduce the amount of necessary labour in cultivation; we produce friability, admit the renovating air, the invigorating rays of the sun, the enriching shower; render the manure applied available, producing so marked a change at harvest that we have an abundant crop of a superior character, arriving much earlier to maturity. Consequently, with the same rent-charge and rates, with diminished horse-labour, and other advantages, we have an infinitely better return; and we are enabled to improve and extend our root culture, by adopting autumnal cultivation, thereby increasing our return in stock, which has usually ruled disproportionately high in price, especially in times of cereal depression. I repeat, I am convinced no investment pays better, whether upon arable or pasture land. The arable becomes, under a sound system of continuously effective drainage, totally changed in character and fertility; double the amount of produce may be produced, while the previously wet pasture is equally benefited, and changes its herbage. Remember in Job it occurs, "Can the rush grow without mire? can the flag grow without water?" Thus the water-grasses—from the lack of food, stagnant water, to sustain them—die out, and are succeeded by clovers and other nutritious grasses. Upon one pasture in Colonel Bence's possession and occupation there is an extraordinary instance of change. It was four years since an undrained pasture, presenting that blue poverty-stricken appearance peculiar to wet grass lands. The herbage, if it deserved the name, was a short, thick, broad, rush-shaped, sharp-edged grass, which the stock neither liked nor thrived upon; but now, since drainage, a change has gradually taken place, and it produces an excellent crop of succulent grasses. At the present, I had rather pay a rental of thirty shillings per acre for it than fifteen shillings previously (Hear). Since drainage, the surface has been continually covered with the old-sered plants, which have died off, and I believe at one time many might have presumed that the pasture was even injured by over-drainage; this would have been a great mistake, and it is certainly improved fifty per cent. Allowing, then, that drainage is desirable, and that it will pay, still the question naturally arises—Which is the most efficient and the most economical method? (Hear, hear.)

I have drained with pipes at the depth of three, four, and five feet, at various distances; I have also drained with whins and bushes; and I have used the mole-plough. With your permission, I will now give you the conclusions at which I have arrived (Hear). I am decidedly in favour of tile-draining; but, as it is an expensive operation, and a permanent improvement to the soil, it is essential that a part of the expense be borne by the landlord in connexion with the tenant; and the proportion of the outlay must be governed by the length of lease granted. I believe, as a general rule, where no lease exists, nor an agreement for the payment of unexhausted improvements upon quitting—I believe, if the tenant's outlay is governed by the cost of bush-draining, and the landlord pays the surplus for substituting pipes, it is a safe rule, and mutually advantageous. In such cases, those gentlemen under whom I have the pleasure to act, have adopted the safer course of arranging that their own pipe-layer shall place the pipes in the drain, quite irrespective of the men executing the digging (Hear, hear). In every case it is desirable that the men contracting for the draining should have nothing to do with placing the pipe, as it prevents that hurried and imperfect workmanship which has repeatedly brought pipe-drainage into disrepute. What does a man care, who is only interested in executing the work as quickly as possible? He knows well he can bury the defects; and we have known instances in which the low spade has never been dug, and the pipes, consequently, not placed. Presuming, then, that landlord and tenant have made an equitable and fair arrangement, which is the best, the cheapest, the most efficient, and most judicious system of draining for our neighbourhood? what the depth and distance? which the best direction? what materials to use? the size of the pipe? the cost, duration, and return? Upon our clays, I do not approve of five-feet drains at intervals of forty feet, as depth, I find, does not compensate for the distance apart; the land is not thoroughly drained; the crop is best nearest the drain; and wetness is plainly perceptible in the intermediate space midway between the drains. Five feet, too, into hard, dry, blue, tenacious clay, is no joke; and the expense of the manual labour is very considerable: but, as such drainage is not sufficient, we must discard it as unworthy of our adoption, as ours is not a subsoil of gaults and gravels, where, I believe, such drainage answers well. I have drained at four feet deep, and twenty-seven apart, in stiff, chalky clay. I am satisfied it has answered, but yet not perfectly: the extra depth has not compensated for the additional distance. I would mention a fact in connexion with one field of fifteen acres I drained in this manner. I attempted to dispense with the water-furrows; but it would not do. The field, after a heavy fall of rain, was quite flooded, the furrows standing full; even the stetches themselves were partially under water. The water-furrows were, of course, again resorted to as a necessity. Upon this same field, the tenant who succeeded me, not being satisfied that the drainage acted quickly enough, cut drains of whin transversely above the pipe-drains; but, to his astonishment, they have never acted, the pipe-drains carrying the entire quantity of water, thus most plainly proving that water enters the drain from the bottom, and not at the top and sides, as many have supposed. It is clear to reason that water gradually rises in the subsoil, with the fall of rain, till it reaches the level of the drain, when it naturally runs off in the aperture to the adjacent outlet. To return. I consider three-feet-pipe draining, at sixteen feet apart, the cheapest and most effective. It has always answered my purpose best. The land has thus been more fully drained. There has been a freedom from wetness, also from too great a dampness, even at the extreme points from the drains; the crop has been even in result; the pipes have been fully protected from injury, either by treading, or by the roots of our cultivated crops: and I pronounce it the most economical and the most efficient system of drainage for this neighbourhood. Three feet has proved efficient depth to prevent the slightest injury from capillary attraction: it has also allowed of ample depth for the roots of plants to work in. And it is singular that, whilst in agriculture some are advocating an extreme depth of subsoil, in which the plant can search for food, as if a mine of immense wealth existed there, often in the culture of fruit-trees, even after deep drainage, the descent of the root is prevented, because adverse to productiveness. I know objections have been raised to the use of pipes, especially on lands with but a slight fall. I have used them where comparatively flat, with perfect safety; but in such cases I prefer the two-inch-diameter pipe, in preference to the inch-and-half: and I strongly recommend the use of the theodolite, or spirit-level, to secure the best fall. I believe it is often impossible to discover the best direction for the drain without an instrument of the kind; and I have often been surprised to find so great an inclination on such an apparently flat surface (Hear).

As to the course of the drains generally, if the angle of descent is not too great, I drain with the best natural inclination, much preferring that principle of action to crossing it diagonally. I object that the drain should be in precisely the same direction or parallel with the furrow; consequently if the greatest gradation is in the line in which the field is generally ploughed, I afterwards alter the direction of the ploughing as I find desirable. I observe we frequently neglect to clear the eyes of our drains, and to scour the watercourses, as necessary. I believe it desirable we should not only carefully attend to these essential points, but it is also requisite that we frequently send round, at suitable times, to examine each outlet, that we may assure ourselves the drains work freely (Hear, hear).

I am of opinion that the pipe drains will last for a vast number of years, probably fifty, or even for a much longer period. Thus durability is one of the great advantages which pipes have over bushes, whins, or straw bands; where I have used such perishable substances as the latter, the drainage has been renewed after eight or twelve years. Further, whilst the pipes remain effective and the land yearly improves, the bush drains gradually fall in: even after four years they become impaired, and gradually get worse, until renewed; consequently during the latter part of the term the land has the disadvantage of partial and imperfect drainage. Again, rats and rabbits are great destroyers of bush drains; and I have one field now, in which this description of drain is literally over-run with rats. The difference in cost between bushes and pipes I have found to be about £2 5s. per acre—£4 10s. for the pipe draining, and £2 5s. for the bush draining; consequently the tenant at will, or with a short lease, or of uncertain tenure, without a covenant for the allowance of unexhausted improvements, or without any direct assistance from his landlord in the draining, adheres to the bush system, which answers his purpose; nor would a heavier outlay be prudent under the circumstances. I have chiefly used the mole plough upon comparatively wet pastures, and in every case it has answered well at the small cost of 20s. per acre; and the drains have lasted eight years (Hear).

As to returns generally, I have found that drainage repays the outlay, according to the amount of the first cost, in two, three, or four years; and sorry indeed should I be, to farm wet clay land without such a system of thorough drainage. The advantage of drainage to the country at large is immense, and the benefit might be vastly increased by enlightened covenants between landlord and tenant. We want to ensure a larger extent of drainage, and of better quality. If a proprietor of clay land, I should certainly make the drainage with pipe a matter of arrangement upon letting an occupation, and I know in the course of years I should be greatly a gainer by the combined investment (Hear, hear).

I would here remark that I am in no way opposed to deep drainage; I have found it answer in West Suffolk upon springy land, upon gaults and gravels; but upon clays I am especially opposed to the expense, because depth does not compensate for distance.

In executing the work, I plough out the drain to one foot in depth, and the drainers draw two spades of one foot each—three feet. The items are:

Eight score rods of digging at 4s. 6d.	£1	16
2,500 pipes at 18s.	2	5
Expense of cartage, laying pipe, also drawing drains	0	9
	£4	10

To recapitulate: We have considered the poverty and infertility of undrained lands; we have shown that drainage is the foundation of all improvement, the precursor of many advantages, ensuring a better return in grain and grass, allowing of improved and extended root culture, and of an increased profit from stock farming. I have recommended three-feet pipe drains at sixteen-feet intervals as the cheapest and most efficient system for this neighbourhood, the expense to be shared by the landlord, the pipe to be laid by a trustworthy person, the directions of the drains to a certain angle to be with the fall, larger pipes to be used on flat land, the theodolite or spirit level also to be used, water-furrows to be retained, that the water enters the pipe at the bottom of the drain, the drains and furrows not to be parallel; the superiority of pipes over bushes; the cost and probable durability of each system; the great advantage which has accrued to the country from drainage, and the need of a better agreement between landlord and tenant to ensure its more extended and more perfect adoption.

A long and interesting discussion ensued.

The following resolution was then unanimously adopted.

Resolved:—"That underdrainage at three feet deep and sixteen-feet intervals is the most effective and economical system for the clay lands generally in the neighbourhood of Halesworth; that pipes are preferable, except on very flat lands; that a fair proportion of the expense must be borne by the landlord in connexion with the tenant."

Thanks were then voted to Mr. Bond and to the Chairman, and the proceedings terminated.

WETHERBY AGRICULTURAL SOCIETY.

The nineteenth annual exhibition of cattle, horses, sheep, pigs, implements, &c., took place at Wetherby on Wednesday, Sept. 30, and was the best show they ever had at Wetherby.

The following were the prizes awarded:—

Judges of horses—Mr. R. P. Hamilton, of Howsham, Brigg, Lincolnshire; Mr. W. S. Atkinson, of Barrowby Hall, Leeds; and Mr. Henry Sagar, of Burnley.

Of shorthorns and pigs—Mr. J. Wood, of Stanwick Park, Darlington; and Mr. B. Wilson, of Brawith, Thirsk.

Of sheep—Mr. R. Fisher, of Leckonfield, Beverley; and Mr. H. Makinder, of Langton Grange, Spilsby.

HORSES.

Best stallion for agricultural purposes, £5, Mr. Robt. Fox, Denton; second, Mr. James Styan, Shipton.

Brood mare for hunters, £2, Mr. Wm. Angas, Neswick, Driffield; second, 10s., Mr. Wm. Gofton, Pockthorpe Hall, Driffield.

Brood mare for coach horses, £2, Mr. John Smith, Marton Lodge, Bridlington; second, 10s., Mr. Quinton Clark, Bilton.

Brood mare for roadsters, £2, Mr. George Theakston, Walton; second, 10s., Mr. Richard Hare, Barrowby Grange.

Brood mare for agricultural purposes, £2, Mr. John Skirrow, Addlethorpe, Wetherby; second, 10s., Mr. T. Acomb, Poppleton.

Three-year-old gelding for hunting, £2, Mr. Geo. Turner, Sicklinghall; second, 10s., Mr. Robert Dunn, North Ferriby, Hull.

Two-year-old gelding for hunting, £2, Mr. S. Parker, Plompton; second, 10s., Mr. R. Hare, Barrowby Grange.

Yearling colt for hunting, £1, Mr. G. Turner, Sicklinghall.

Three-year-old filly for hunting, £2, Mr. Harcourt, Bolton Percy; second, 10s., Mr. Thomas Gilling, Upsall, Thirsk.

Two-year-old filly for hunting, £2, Mr. Wm. Wright, Beckwith House, Pannal; second, 10s., Mr. Thos. Bentley, Pannal Hall. Yearling filly for hunting, £1, Mr. L. Walker, Scarcroft.

Three-year-old gelding for coaching, £2, Mr. John Stoker, Bickerton; second, 10s., Mr. John Potter, Spofforth, Wetherby.

Two-year-old gelding for coaching, £2, Mr. Richard Waddington, Goldsbro'; second, 10s., Mr. W. K. Goodbarne, Ouston Hall, Tadcaster.

Yearling colt for coaching, £1, Mr. W. Ridsdale, Rowlay.

Three-year-old gelding for agriculture, £2, Mr. W. S-Clough, Eccup Grove; second, 10s., Mr. Thos. Upton, Pallathorpe.

Two-year-old gelding for agriculture, £2, Mr. Thomas Upton; second, 10s., Mr. W. Walker, Goldsbro'.

Yearling colt for agriculture, £1, Mr. Jas. Harland, Kearby.

Three-year-old filly for agriculture, £2, Mr. W. Proude, Thornville; second, 10s., Mr. D. Hainsworth, Harewood.

Two-year-old filly for agriculture, £2, Mr. Thos. Acomb; second, 10s., Mr. Thos. Upton.

Yearling filly for agriculture, £1, Mr. Jas. Parker, Dun Keswick.

SHORTHORNED CATTLE.

Best three-year-old or aged bull, £3, Mr. C. Wright, Oglethorpe Hall, Tadcaster; second, £1, to Captain Gunter, Wetherby Grange.

Two-year-old bull, £3, Mr. Thos. Barber, Sproatley, Hull; second, £1, Mr. Robert Tennant, Scarcroft Lodge.

Yearling bull, £2, Mr. Thos. Jolly, Warlaby, Northallerton; second, £1, Mr. Henry Ambler, Watkinson Hall, Halifax.

Bull-calf under twelve months old, £1, Mr. H. Ambler.

Three-year-old or aged cow in-milk or calf, £3, Mr. H. Ambler; second, 10s., Mr. John R. Middlebrough, South Milford, Milford Junction.

Two-year-old heifer, £2, Mr. Wm. B. Cox, Pickering; second, £1, Mr. H. Ambler.

One-year-old heifer, £2, Captain Gunter; second £1, ditto.

SHEEP.

Best three-shear or aged ram, £3, Mr. W. Angas, Deswick, Driffield; second, £1, Mr. J. Simpson, Spofforth Park, Wetherby.

Two-shear ram, £3, Mr. Wm. Smith, Burton Leonard, Ripon; second, £1, Mr. Joseph Simpson, Spofforth Park.

One-shear-ram, £3, Mr. J. Simpson; second, £1, Mr. Wm. Walker, Goldsbro'.

Pen of five ewes, having had and suckled lambs this year, £3, Mr. Robert Crowe, Speeton, Bridlington; second, £1, Mr. Wm. Walker.

Pen of five shearling wethers, £2, Mr. John Thompson, Bramham.

Pen of five shearling gimmers, £3, Mr. John J. Simpson, Pilmoor House, Hunmanby; second, £1, Messrs. T. and C. Mitchell, Market Weighton.

PIGS.

Best boar, large breed, £2, Mr. John Webster, Shipton, Market Weighton; second, £1, George Lane Fox, Esq., Bramham Park.

Sow, large breed, £2, Mr. T. Barker, Woodhouse Lane, Leeds; second, £1, Mr. Jas. Coates, Wetherby.

Boar of the Bramham Moor or middle breed, £2, Mr. T. Barker; second £1, to Mr. Josh. Wilkinson.

Sow of the Bramham Moor or middle breed, £2, Mr. J. Wilkinson; second, £1, to Mr. Norfolk, Dun Keswick.

Boar, small breed, £2, Mr. Barker; second, £1, Mr. G. Hutchinson, Prospect House, York.

Sow, small breed, £2, Mr. W. Burnett, jun., Wetherby; second, £1, Mr. J. Wilkinson.

Store pigs under 15 months old, £1, and second prize, 10s., Mr. Wm. Hill, Wetherby.

Store pig, age and quality considered, the property of an agricultural labourer or his widow, £1, James Grinston, Tadcaster; second, 5s., to Richard Wardle, Wetherby.

EXTRA PRIZE.

A silver medal for the best shorthorned bull, entered in any of the classes, Mr. Thomas Jolly, of Warlaby.

EXTRA STOCK.

HORSES.—Mr. Thomas Acomb, Poppleton, York, £1.

SHEEP.—Mr. T. C. Mitchell, Market Weighton, 5s., for a fat ewe.

PIGS.—Mr. Geo. Hutchinson, Prospect House, 5s., for three boar pigs; and Mr. Chr. Robshaw, Wetherby, 5s. for two pigs.

EXTRA PREMIUMS.

Andrew Montagu, Esq., offered for the best stallion for hunters £5; Mr. Francis Mackintosh, Barwick-in-Elmet.

George Lane Fox, Esq., offered for the best hunter from 4 to 8 years old £5; Mr. John B. Booth, Killerby, near Catterick.

Mr. H. C. W. Mitchell offered for the best gelding or filly by Matchless Merrylegs £1; Mr. John Renton, Farnley, Otley.

John Rhodes, Esq., offered for the best bull of any age £3; Mr. Charles Wright, Oglethorpe Hall.

John Rhodes, Esq., offered for the best three-year-old or aged cow, in-milk or calf, £2; Mr. Thomas Hill, Wetherby.

George Lane Fox, Esq., offered for the best two-year-old heifer £2; Mr. Alexander Christie, Kirk Hammerton.

George Lane Fox, Esq., offered for the best one-year-old heifer £2; Mrs. Hannah Dyson, Wetherby.

Mr. Thomas Barber offered for the best heifer calf under twelve months old £1; Mr. Thomas Jolly, Warlaby, Northallerton.

Captain Gunter offered for the best female shorthorn of any age, entered in any of the classes, £5 5s., or a silver cup of that value; Mr. H. Ambler, Watkinson Hall, Halifax.

George Lane Fox, Esq., offered for the best two-shear or aged ram £2; Mr. William Smith, Burton Leonard, Ripon.

The Earl of Harewood offered for the best shearling ram £3; Mr. Joseph Simpson, Spofforth Park; second, £2, Mr. William Walker, Goldsborough.

T. Fairfax, Esq., offered for the best tup lamb £1; Mr. Stephen Barrett, Harewood Bridge; second, 10s., Mr. William Walker, Goldsborough.

George Lane Fox, Esq., offered for the best pen of five ewes £2 10s.; Mr. William Walker, Goldsborough; second, 10s., Mr. Joseph Simpson, Spofforth Park.

George Lane Fox, Esq., offered for the best pen of five gimmer lambs £2 10s.; Mr. J. Simpson, Spofforth Park; second, 10s., Mr. Thomas Hannam, North Deighton, Wetherby.

AUTUMNAL INVITATIONS.

Come in the opal air,
  This autumn morning soon;
Health is treasuring there
  A " life insurance" boon.
You can't imagine the calm
  Lolling about the heart,
Inviting with open palm
  The fledgling muse to start.

Come in the elastic air,
  This Autumn-painted morn;
Summer's left her jewels there,
  With the last queen-robe she's worn.
The votary relics of Spring
  Are trailing about its hem;
With the light of an angel's wing
  The day-god's crowning them.

The hills are clothed with day,
  In ribbony-purple light;
You'll loiter along the way,
  Tempted left and right.
You won't think Summer's behind;
  But waving a little before,
Her last pet-flower, to call to mind
  The family gems she wore
Leaving a musk in every wind
  Of the perfumed wreaths she wore.

Come in the opal air,
  This autumn morning soon;
Health's breathing in spirit there,
  And robin gloats with tune—
Health's rosiest bantling's there,
  By the May-queen nursed by June.
You can't imagine a type
  Of heaven so clear and quiet,
As when robin breaks short his pipe,
  For the fledgling muse to try it.

LUDLOW AGRICULTURAL SOCIETY.

The meeting held on Monday, Sept. 27, was considered the best of the society's meetings. Herefords, of course, are a conspicuous feature in this show, but this year it excelled itself, for a finer lot of this splendid breed were never, we believe, exhibited. It is questionable if a more magnificent animal than that belonging to Mr. Rea, of Weston-berry—which, in addition to the society's prize of £5, carried off the sweepstakes for the best stock bull of any age—could be produced. This beast was only two years seven months and 21 days old; but with a frame so massive and so evenly built that there was scarcely any demur to the decision of the judges. The bull sent by Lord Berwick was certainly much admired; and one gentleman was so impressed with the value of his judgment that he offered to lay a guinea to a shilling that it was "the best in the yard;" but there was no taker of a seemingly advantageous bet. The bull calves were excellent; and to give satisfaction in this class in awarding the prizes, where so much merit prevailed, required no little care. The yearling heifers of Mr. Pitt, of Chadnor, were declared to be models of symmetry; and the breeding cows of Mr. Hewer, of Vern Farm, were generally admired, as were also those of Mr. Urwick, of Leinthall Starkes. Mr. Stedman, of Bedstone, was adjudged to have the best fat cow; though it required a practised eye and hand to determine between it and Mr. Price's, of Pembridge. In the extra stock was a most symmetrical young Hereford bull, which was a fortnight too old to compete in class 6, and to it was awarded a prize of £1; the same compliment being paid to "Regent," the property of Mr. Bright, of Kempton. This latter was sold by auction in the course of the day, by Mr. H. A. Jones, of Shrewsbury; but, notwithstanding that his reputation was great in the annals of cattle shows, a bid of only 39 guineas was elicited, and for that he was knocked down.

Of sheep there was not a large collection, but in quality they were very superior. The display of Shropshire-downs over any other breed went far to show their popularity. In the extra stock department were some Hampshire-down rams, shown by Mr. Brown, of Affcott, near Swinburne, which were much admired, and which were awarded a prize of £6.

Pigs were also limited; but those presenting themselves to notice were fine specimens of the race. The boar, the property of Mr. Cox, of Ludlow, and the breeding sow, belonging to Mr. Matthew Evans, of the Craven Arms, were, as members of the porcine family, faultless; whilst the cottagers' pigs rejoiced in an amount of obesity quite marvellous.

The prize offered for the best cart stallion attracted but two competitors; and of the pair a red roan horse of Mr. Bach's was declared to be the best. The other, however, owned by Mr. Maund, of Rockhill, on a smaller scale, had still a good deal of substance, and was a very smart animal. The hacks were neither numerous nor remarkable; but there were a number of mares and foals which deserved attention. In addition to those which were awarded prizes, we may notice a chesnut—sent by Lady Langdale, of Eywood—with a colt foal at her foot, by a Persian Arabian, (the property of the Emperor of the French) which was commended, and attracted much attention. She was long, low, and particularly handsome; but the colt had been suffering from strangles, and looked weak on the legs, or it is probable he and his dam would have received high honours. The cart mares were roomy, and generally just the style of animal to brood from; and the foals were quite in keeping with such good parentage.

The following was the Prizes awarded:—

Judges for cattle and sheep, Mr. Bright (of Teddesley, Stafford), Mr. Jones (of Norton, Salop), and Mr. W. James, (of Hereford); and for horses, Mr. John Bosley (of Hereford).

CATTLE.

For the best bull with four of his offspring, £5—Mr. Rea, Weston-berry.
For the best bull-calf, £5—Mr. Edwards, Wintercot.
For the second best bull-calf, £2 10s.—Mr. Williams, Kingsland.
For the third best bull-calf, £1—Mr. Rea, Weston-berry.
For the four best yearling steers, £5—Mr. Sheriff, Coxall.
For the second best steer, £2 10s.—Mr. Tudge, Ashford.
For the best pair of steers, £5—Mr. Edwards, Wintercot.
For the four best yearling heifers, £5—Mr. Pitt, Chadnor.
For the second best, £2 10s.—Mr. Stedman, Bedstone.
For the best pair of yearling heifers, £5—Mr. Stedman, Bedstone.
For the four best breeding in-calf cows or heifers, £5—Mr. Hewer, Vern Farm.
For the second best four, £2 10s.—Mr. Urwick, Leinthall, Starkes.
For the best fat cow or fat heifer, £5—Mr. Stedman, Bedstone.
For the second best, £2 10s.—Mr. Price, Pembridge.

SHEEP.

Southdown, Shropshire Down, or Dark-faced Breed.

For the best yearling ram, open to all England, the gift of the Rev. W. T. Kevill Davies, £5—Mr. Horton, Harnage Grange.
For the second best yearling ram, £2 10s.—Mr. Green, Marlow.
For the best ram more than two years old, £5—Mr. Tarte, the Bach.
For the second best ram, £2 10s.—Mr. Bach, Onibury.
For the best pen of ten aged ewes, £5—Mr. Williams, Culmington.
For the second best pen, £2 10s.—Mr. Urwick, Felton.
For the best pen of ten yearling ewes, £5—Mr. Brettel Vaughan, Burway.
For the second best pen, £2 10s.—Mr. James Hand, Ludlow.
For the best pen of ten fat yearling wethers, £5—Mr. James Hand, Ludlow.
For the second best pen, £2 10s.—Mr. Brettel Vaughan, Burway.

PIGS.

For the best boar under two years old, £2—Mr. Richard Cox, Ludlow.
For the second best, £1—Mr. Matthew Evans, Craven Arms Hotel.
For the best breeding sow, £2—Ditto.
For the second best £1—Sir Charles Rouse Boughton, Bart., Downton-hall.

HORSES.

For the best nag mare and foal at foot, £5—Mr. Williams, Kingsland.
For the second best, £2 10s.—Mr. Mansell, the Jay.
For the best cart mare and foal at foot, £5—Mr. Carwardine, Stockton Berry.
For the second best, £2 10s.—Mr. J. Jones, Luston.
For the best shaped nag gelding or mare, the gift of W. H. Sitwell, Esq., £5—Mr. Shirley, Bawcot.
For the second best, £2 10s.—Mr. James Hand, Ludlow.
For the best cart stallion, £5—Mr. E. Bach, Cheney-Longville.

For the best cart gelding or mare, £4—Mr. Coston, Hayton.
For the second ditto, £2—Lord Bateman.

EXTRA STOCK.

A Sum of £5 divided amongst the Owners of the best Animals exhibited as Extra Stock.

£1 to Mr. James Williams, for four cows.
£1 to Mr. John Ashwood, for two steers and two heifers.
£1 to Mr. J. W. Brown, for four Hampshire rams.
£1 to Lord Bateman, for a bull.
£1 to Mr. Bright, for a bull.

SWEEPSTAKES.

A Sweepstakes of 3 sovs. each, for the best Stock Bull, open to all England, with 20 sovs. added.

First prize, £39—Mr. Rea, Westonberry.
Second, £5—Lord Bateman.
Third, £3—Lord Berwick.

THE COVEHITHE SALE

OF HORSES, CATTLE, SHEEP, PIGS, POULTRY, &c.

BY ORDER OF THE EXECUTORS OF THE LATE MR. EDWARD COTTINGHAM.

This sale has fully maintained the character Mr. Cottingham had earned for himself as an agriculturist. All those who knew anything of him were quite prepared to find some superior descriptions of stock; and there was consequently a very large attendance of company. This included not merely the best men of the district, but both bidders and buyers from Kent, Cambridgeshire, Essex, Norfolk, Middlesex, and Leicestershire, headed by the Prince Lieven in person, from Russia. There were also present, the Earl of Stradbroke, and the Hon. W. Rous, Colonel Scudamore, and Messrs. J. G. Sheppard, W. Long, G. Holmes, Fellowes, J. Peto, O. Parker, N. G. Barthropp, T. Crisp, Garrett, Allen, Sexton, Boby, Frost, Kersey Cooper, and others whose names the list of prices will supply. The great feature of the occasion was the sale of Suffolk horses; and, the present price of corn considered, really a very wonderful return it was. The stock, however, quite merited the appreciation in which they were held, while for the working horses of a farm, they were a most admirable collection, almost generally remarkable for their great size, fine forehands, and good action. It should be stated, moreover, that there was no culling or keeping back. The horses offered were all those on the farm on the day of Mr. Cottingham's death, one only being withdrawn from lameness. In many respects this must be regarded as the sale of the year, at the same time that it marks the increasing reputation of the Suffolk draught horse. The prices were not kept up by the county people, but gentlemen from a distance came for more of a sort they have already some experience of. For instance, the purchaser of the best mare, Mr. Wall, is from Pembrokeshire, her sire Mr. Barthropp's Newcastle Captain having for the last season or two been located in South Wales, whither he has been transferred by the Rev. W. Beever, of Cowbridge. It is noticeable that the highest-price gelding is also by Newcastle Captain. But Mr. Cottingham had not been trusting merely to one certain strain of blood. The pedigrees will show that Messrs. Catlin and Crisp had also contributed to the excellence of the teams, while the best-priced horse of all, the aged stallion, is of this breed.

We give the sale of the Suffolk horses in full, with their pedigrees, so far as they were published in the catalogues, prices, and names of purchasers. Mr. Freeman conducted the sale, which really realized all that even an auctioneer could say of it.

CHURCH FARM.

FIRST TEAM.

Diamond, 3 yrs. old filly, by Catlin's Duke, in foal to Suffolk Captain, £80 17s., Mr. Howlett.
Briton, 8 yrs. old gelding, £44 2s., Prince Lieven.
Bly, 4 yrs. old gelding, £57 15s., Mr. Wall.
Matchett, 8 yrs. old mare, by Manchester Boxer, bred by the late Mr. Catlin, in foal to Suffolk Captain, £81 18s., Mr. Kersey Cooper.

SECOND TEAM.

Duke, 7 yrs. old gelding, £69 6s., Mr. Bagge.
Dragon, 3 yrs. old gelding, £54 12s., Hon. W. Rous.
Boxer, 5 yrs. old gelding, £61 19s., Mr Brandreth.
Prince, 10 yrs. old, £29 8s., Mr. Howlett.

THIRD TEAM.

Smart, 8 yrs. old mare, in foal to Briton, £48 6s., Prince Lieven.
Nelson, 4 yrs. old gelding, £39 18s., Mr. Bagge.
Darling, 8 yrs. old mare, in foal to Briton, £65 2s., Mr. Reynolds.
Smiler, 9 yrs. old gelding, £31 10s., Mr. Pratt.

FOURTH TEAM.

Ramper, 10 yrs. old gelding, £23 2s., Mr. Bruce.
Darby, 10 yrs. old mare, by Catlin's Captain, in foal to Briton, £42, Mr. Chaston.

BEACH FARM.

FIRST TEAM.

Fancy, 8 yrs. old mare, by Keer's Boxer, dam Diamond mare, in foal to Mr. Cooper's horse, £69 6s., Mr. Crisp.
Snap, 7 yrs. old mare, £36 15s., Mr. Brewster.
Briton, 8 yrs. old gelding, £29 8s., Mr. Howlett.
Jolly, 12 yrs. old gelding, £7 7s., Mr. Bloomfield.

SECOND TEAM.

Dapper, 7 yrs. old mare, in foal to Briton, £47 5s., Mr. Howlett.
Smiler, 7 yrs. old gelding, £47 5s., Mr. Pratt.
Bly, 4 yrs. old gelding, £45 3s., Mr. Oldfield.
Brag, 3 yrs. old mare, £99 15s., Mr. Oldfield.

PORTER'S FARM.

FIRST TEAM.

Brag, 6 yrs. old mare, by Barthropp's Newcastle Captain, in foal to Suffolk Captain, £115 10s., Mr. Wall.
Proctor, 5 yrs. old gelding, £68 5s., Mr. Wilkinson.
Briton, 7 yrs. old gelding, £45 3s., Mr. Preston.
Tom, 10 yrs. old bay gelding, £31 10s., Mr. Pratt.

SECOND TEAM.

Fancy, 8 yrs. old mare, in foal to Briton, £53 11s., Mr. Howlett.
Snap, 7 yrs. old mare, in foal to Suffolk Captain, £105, Mr. Howlett.

THIRD TEAM.

Spright, 7 yrs. old mare, in foal to Briton, £31 10s., Mr. Bruce.

Trimmer, 10 yrs. old gelding, £22 1s., Mr. Delf.

Darby, 10 yrs. old brown mare, in foal to Briton, £34 13s., Mr. Pepper.

Duke, 5 yrs. old gelding, £69 6s., Mr. Lucas.

Boxer, 8 yrs. old gelding, £29 8s., Mr. Pratt.

Dapper, 10 yrs. old red mare, in foal to Briton, £42, Mr. K. Cooper.

FOURTH TEAM.

Brag, 12 yrs. old mare, £29 8s., Mr. Brandreth.

Farmer, 11 yrs. old gelding, £29 8s., Mr. Howlett.

Scott, 11 yrs. old mare, in foal to Briton, £30 9s., Mr. Bruce.

STALLIONS.

Captain, 8 yrs. old, by Crisp's Captain, dam diamond, bred by the late Mr. Shaw Kesgrave, £147, Mr. K. Cooper.

Briton, by Barthropp's Newcastle Captain, dam Mr. Shaw's mare, £106, Mr. Pawsey.

A yearling colt, by Briton, dam Gyp (Lot 190), £79 16s., Mr. Rogers.

A yearling colt, by Briton, dam Darby (Lot 154), £57 15s., Mr. Parker.

BROOD MARES AND FOALS.

Gyp, 10 yrs. old, by Crisp's old Captain, in foal to Briton, £94 10s., Mr. Pawsey.

Filly foal (off Lot 184), by Briton, £54 12s., Mr. Fellows.

Scott, 5 yrs. old, by Suffolk Captain, dam Gyp, in foal to Briton, £105, Mr. T. Capon.

Horse foal (off Lot 186), by Briton, £27 6s., Mr. Cobb.

Fancy, 10 yrs. old, by Wigg's Old Briton, in foal to Briton, £58 16s., Mr. Howlett.

Horse foal (off Lot 188), by Briton, £37 16s., Mr. Hinde.

Gyp, 7 yrs. old, by Catlin's Captain, dam Gyp, in foal to Briton, £105, Mr. J. Peto.

Horse foal (off Lot 190), by Briton, £52 10s., Mr. Woods.

Darby, 4 yrs. old, by Mr. Sexton's horse, in foal to Briton, £65 2s., Mr. Brandreth.

Filly foal (off Lot 192), by Briton, £30 9s., Mr. Brandreth.

A 3 yrs. old filly, by Crisp's Prince, dam Mr. Shaw's Diamond, £44 2s., Mr. Cobb.

A 2 yrs. old filly, by Catlin's Sultan, dam Matchett (off Lot 144), £51 9s., Mr. Howlett.

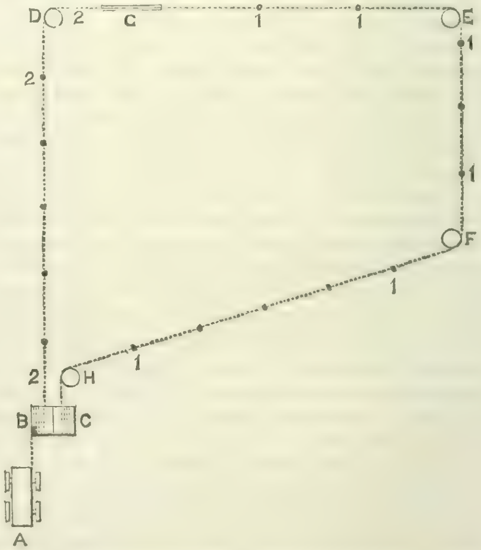
A 2 yrs. old filly, by Suffolk Captain, dam Fancy (off Lot 188), £105, Mr. Pawsey.

A 2 yrs. old filly, by Briton, dam Gyp (off Lot 184), £48 6s., Mr. Oldfield.

A yearling filly, by Suffolk Captain, £42, Mr. Packard.

THE LEADING FEATURES OF THE IMPLEMENT DEPARTMENT OF THE CHESTER SHOW.

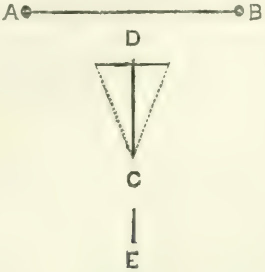
We devoted the last portion of our former article to a description of the improved mechanism adopted by Mr. Fowler in carrying out his system of steam cultivation. We now proceed to a notice of the other plans, brought to the test of practical working at Chester. Of these, the first which claims our attention is that of Mr. Smith, of Woolston, near Bletchley; the conduct of the trial being under the care of Messrs. Howard, of Bedford, by whom also the mechanism used was manufactured. Mr. Smith's plan of operation, so celebrated from his persevering efforts to introduce it into practice, aims at substituting for the operation of the plough that of implements resembling in action the common grubber, by which he is of opinion a better—because a more philosophical—style of cultivation is attained. Leaving till the end of this article all consideration of this system as compared with ploughing, or the still greater innovation of "rotary cultivation," we now proceed to explain the arrangements and mechanism by which Mr. Smith carries out his system in practice. The following diagram will perhaps facilitate the reader's comprehension of the field arrangement as proposed by Mr. Smith.



Let *a* represent the steam-engine, not exceeding ten-horse power; *b c*, the windlass (hereafter described); *d e f h*, turn-tables, round which the wire rope shown by the dotted line passes: these turn-tables are moored firmly to the spot by anchors furnished with curved tines, which penetrate the soil, and give a firm hold when the strain of the engine is put upon the turn-tables. The wire rope as it passes from turn-table to turn-table, runs over friction pulleys or rollers, shown in the diagram by dots or points. The windlass is furnished with two drums, hung side by side vertically on a horizontal shaft, which revolves in bearings on the side of the framing, which is mounted on four travelling wheels. A spur-wheel is formed on the rim or flange of each drum, with which a pinion is made to gear alternately. This pinion is hung on a cross shaft, parallel to the shaft of the two drums, and by means of a sliding clutch is capable of being moved a certain distance along the shaft, so that it can be made to engage with the spur wheel of either drum as desired. The shaft carrying the pinion is driven by the steam-engine through the medium of a pulley and a driving band. Each drum is provided with a break, by which the winding and unwinding of the rope can be regulated. To work the apparatus here briefly indicated, the following attendants are required: An engine-driver at *a*; a man to attend the operation of the windlass at *b c*; a ploughman and assistant at the cultivating implement *g*, the assistant shifting the rollers, &c.; and two anchor-men, one at each end of the part to be ploughed, as at *d* and *e*; a boy also should be provided to attend to various points wherever and whenever wanted. Matters being thus arranged, the operation of ploughing or cultivating is carried on thus: To the beam of the implement a bar of iron is fastened, so shaped as to admit of the free play of the two wire ropes attached to it. Suppose the engine is started, and the pinion of the cross shaft gearing with the spur-wheel of the drum *c*, so as to pull in the wire rope 1 1, and by its means the cultivating implement *g*, in the direction from the anchor *d* to that marked *e*. Coincident with the winding-up of the rope 1 1 on the drum *c*, is the paying-out of the rope 2 2 from the drum *b*. As soon as the implement *g* arrives at a point in as close proximity to the anchor *e* as desirable, a signal is waved, at recognition of which the engine-driver stops the engine, and the windlass-man, by means of the clutch lever, throws the pinion on the cross shaft out of gear with the spur-wheel of the drum *c*, and into gear with that of the drum *b*. The turn-table is at the same time removed a short distance down the line *e f* towards the turn-table *f*. The distance from the new anchorage to the point of the old one at *e* is exactly equal to twice the width of land which the implement *g* works each time. These operations are effected in a much shorter space of time than has sufficed to describe them. The implement in its reversed position begins as soon as the engine is started to move in the direction from *e* to *d*, the rope 2 2 being wound round the drum *b*, while coincidently the rope 1 1 is paid out from the periphery of the drum *c*. Immediately on the starting of the implement *g* from the end of its bout near the turn-table *e*, the second anchor-man removes the anchor which held the first turn-table to a point below the second anchorage. On the implement reaching the end of its bout towards the turn-table *d*, the operations above described are again gone through; the position of the implement is again reversed: the drum *c* hauls in the rope 1 1, the drum *b* paying out that marked 2 2; and the operations are repeated till the anchor *e* reaches a point in the line *e f*, near to the anchor *f*, when the part of the field under operation is wholly broken up. The engine *a* in the diagram is supposed to be standing in the centre of the field; so that, when the right-hand half is cultivated, the anchors are all reversed, occupying the same relative positions, but on the left, instead of the right hand, of the engine *a*. A convenient size of land to be cultivated is set down by Mr. Smith at from ten to twelve acres, and a convenient distance between the anchors *d* and *e* at one-eighth of a mile. The implements chiefly used by Mr. Smith are four in number, one of these being a three-tined, and another a five-tined grubber. The former, used for autumn culture, consists of a frame in which are fixed three tines, curved in outline, and presenting broad points at their extremities. The central one is placed in advance of the others some thirty inches, thus: $^{\circ}{}_{\circ}{}^{\circ}$. The frame carrying the tines is irregular, and runs on and is supported by two wheels, the height of which is regulated after the manner adopted in wheel-ploughs. To the near end of the frame two handles, or stilts, are fixed, strengthened with a cross-bar and bow. From the other end a beam composed of two flat iron bars projects: this carries at its extremity a vertical stud, provided at its lower end with a cross, at the extremities of which guiding wheels are supported. The vertical stud carrying these passes through an eye at the point of the beam, and is adjusted therein at any desired height. To a cross-lever at the upper end of the stud the forked end of a lever is fixed, this lever being carried backward to within reach of the attendant, and made to rest on a horizontal bar, the upper edge of which is notched, the notches corresponding to the breadth of the lever, so that it can be placed and retained in any one of them. By moving the lever from right to left, the cross carrying the two guiding wheels is moved in a reverse direction, and the frame, with its tines, guided as desired. By the relative heights of these two guiding wheels and the two wheels of the frame, the depth to which the tines penetrate the soil is regulated. When properly adjusted, the points of the tines take a firm hold of the subsoil; and as the strain of the engine is continued, the whole mass of soil is torn from its normal position, and its parts broken up and mingled together, leaving the weeds, &c., at the surface. The five-tined grubber—an implement found to be well adapted to the cultivation of light and moderately-tenacious soils—in appearance and mode of adjustment is very similar to the former, above described.

It is here to be noted that, although we designate these implements as "grubbers," Mr. Smith disclaims all similarity of action to that of the ordinary grubber, cultivator, or scuffler. On this point he states that, satisfied that all implements of this class were constructed on wrong principles, or rather without attention to any principle, and that their tendency of action was to rise in, not to penetrate, the soil, he endeavoured to construct an implement the tendency of the action of which would be, to draw into the ground. To effect this, he took a ship's anchor for his model. The result of his experiments was, that he brought out an implement which took hold of the soil in so complete a manner, that the question became one of importance, how to prevent its going too deep. This difficulty was in time obviated. "On this principle," says Mr. Smith, "both my patent cultivator and steam plough are constructed. Speaking perhaps in hyperbole, they are no more like an ordinary cultivator, scuffler, or scarifier, than the best of our ship anchors are like a great stone tied by a string, to keep a boat to the side of a pond. My steam plough is, in point of fact, three of the best-formed anchors that I can find, braced together with iron enough to support the strain upon them." Returning to our description of Mr. Smith's implements, we may state that, in construction, the "steam-plough" here referred to resembles the "five-tined" implement we described in our last article.

Instead of having five tines, it has however only two, these being at the end of the frame near the stilts; the two front ones and the central tine are removed, and a share with a double mould-board substituted; a coulter is fixed in the frame, and precedes the mould-boards, as in the ordinary ploughs. The arrangement stands thus;



a b the two tines, *c d* the double mould-board ploughs *e* the coulter. The ends of the framing near the stilts support two pedestals or plummet blocks; these carry a cross shaft, worked by a lever handle *(a)* at its outer extremity. Outside the pedestals two levers *(b c)* are keyed on to the cross shafts these carrying wheels at their outer extremities. These wheels are used to raise the plough off the ground at the end of the bout. The lever handle *(a)* being raised towards the attendant, this depresses the outer end of the levers *(b c)*, and brings the wheels connected with them in contact with the ground, raising the plough, and making it rest upon them. This steam-plough is stated to be a useful implement for autumn cultivation. The tines *(a b)* are set to penetrate the soil some four or five inches deeper than the share *(c d)* which precedes them. The operation of the plough trenches the land, subsoils it, and lays it up dry for the winter.

The subsoil plough used by Mr. Smith consists of a strong iron beam, with guide wheel in front, and two stilts or handles at equal angles at the other end; near the handles a central tine is fixed in the beam, and which is capable of entering the soil to a depth of twenty-two inches. It is used in conjunction with the plough described above, this forming the trenches, and the subsoil plough subsoiling between the ridges. It is also adapted to "cut the land in slices fifteen or twenty inches wide, to admit the air and let off the water to the drains, on land that has been trodden by sheep when eating off turnips."

Mr. Smith gives an estimate of the cost of breaking up thirty acres, three fields of bean and pea-stubbles, as follows:

	£	S.	D.
2 men at 3s. 6d. per day (6 days)	2	2	0
4 men at 2s. 6d. per day (6 days)	3	0	0
1 boy at 1s. per day (6 days)	0	6	0
1 boy at 6d. per day (6 days)	0	3	0
Coals, 45 cwt.	1	18	3
Oil	0	5	9
	£7	15	0

being at the rate of 5s. 2d. per acre. The judges of the trials at Chester give, in their Report to the Council, the following estimate of the

DAILY WORKING EXPENSES.

	£	S.	D.
Engineer	0	5	0
Four men in field	0	10	0
Boy	0	1	0
Water-cart	0	5	0
Removal	0	4	0
Coals, 10 cwt.	0	10	0
Oil, &c.	0	1	0
Interest 5 per cent., wear and tear 20 per cent. on first cost (£430); taking 200 as the number of working days per year	0	10	9
	£2	6	9

The operation at the trial field on Mr. Smith's plan was two-fold—first going over the land with the three-tined cultivator which we have described in this article; penetrating the soil to a depth of six to seven inches, tearing it up, yet leaving the surface in somewhat its normal position; then crossing this with a five-tined cultivator—already described—which reverses the top soil, leaving the surface rough and irregular, to be exposed to atmospheric action. The amount of work completed by the two operations was equal to about five acres, this taking 15 hours, or at the rate of 3½ acres per day. Taking the estimate of daily expenses as above stated, this gives the cost per acre at 14s. The same done by horse-power—which would involve three distinct operations—would cost not less than 18s. 6d. per acre.

It now remains, under this department of our papers, to notice the fourth plan which was entered to compete for the steam-culture prize, this being the "rotary cultivator" of Mr. Rickett, of Castle Foundry, Buckingham. This invention consists of two principal parts—the revolving cultivating-implement, and the locomotive-engine which drives it; the direction of motion of the cultivator being the same as that of the engine, as it traverses the land to be cultivated.

The "cultivator" consists of a long horizontal shaft (*a*), revolving in bearings at the ends of radial links, the other extremities of which are connected with the engine. The shaft (*a*), when in use, works nearly in contact with the ground, the distance being regulated by an adjusting screw and link, worked by small bevil gearing within easy reach of the engine-driver. The tines (*b*) are arranged round the shaft (*a*) in such a manner that they enter the soil in succession as the shaft revolves, the whole presenting the appearance of twisted beads or screws. The form of the cutters varies according to the nature of the work required to be performed. The direction of motion of the cutters, and the progressive motion of the engine across the field, being the same, the cutter enters the soil from below, working upwards to the surface. The outer edge of each cutter enters the soil at a point behind the axis of motion; and in consequence of the onward motion of the shaft—through the medium of the engine—it rises out of the soil at a point considerably in advance of it. This arrangement enables the cutters to remove a considerable portion of the soil to be moved, by a tearing-asunder motion, rather than by compression, as usually adopted in plans for rotary cultivation.

The shaft (*a*) receives motion by means of a chain gearing from a spur-wheel, which engages with a second spur-wheel on the shaft of the engine driving-wheel. The length of the cut taken can be regulated by means of change-wheels.

By the use of the cultivating machine, the judges are of opinion that a considerable saving of power is effected in strong and stony soils, and the soil left in an open condition. With the shaft making 75 revolutions per minute, and the engine advancing 20 feet, the tines take a slice 4½ inches wide by 6 inches deep, the length being 7 feet—this gives 91½ poles per hour, or 5¾ acres per day, as the quantity of land worked up. The expenses being set down at £1 15s. 9d. per day, the cost of cultivating per acre by this machine is 9s.

Last year, in an article in this Journal, under date Dec. 21st, we concluded a series of investigations into the action of the plough as compared with that of implements which merely turned up and disintegrated the soil, by remarking that every year's experience tended to bring to a closer bearing upon the practice of agriculture this question; shall the plough, and the peculiar work which it performs, be accepted as the implement by which, and the manner in which, culture shall be effected? and that chief among the influences thus operating would be that of steam. This year's experience at Chester with the new power has given greater importance than ever to this question. The plough, steam-dragged, has met with opposition in the field by plans essentially different in principle and operation, and which have received highly favourable notices from the judges. The advocates of the new system of culture, therefore, inspired with new life and cheered by fresher hopes, will be prompted still more energetically to bring the question to an issue. It is quite evident that the plough, to give us a deeper-stirred soil with a due economy of traction power, must be modified in its details; and apart from the question of economy, the still more important one of agricultural fitness remains to be discussed. While, therefore, the experience of the trials at Chester have given us decided evidence of what the power of steam can do for us in the field, it behoves us to consider well in what way and to what mode of culture we can best adopt it. It will not do to say that because the plough has done good work with horse, it will also do good work by steam traction. This is not the philosophical way to settle the point. No one denies the fact that the plough does good work, but it is only good work of its kind. The question is quite another one, Is it of the kind we want? It is always a good plan, when we wish to get at the root of any matter, not to mingle two questions in one discussion—not to bother ourselves, for instance, when we want to discover the best method of weaving cloth, with considerations as to how to find a market for it when it *is* woven. The making of the cloth, and the selling of it, are two distinct things; that is obvious enough. So in the matter before us, the question of what condition of soil the farmer wants for his crop, is quite distinct from that which involves the consideration of the mechanic as to the method by which he is to bring about this condition of soil. The first point, therefore, to consider is, what is the condition of soil required? Is it imperatively essential that the surface shall be inverted, laid over in regular slices, and at a determinate angle? If the question is answered in the affirmative, then the point is a very narrow one—the plough must be retained; if in the negative, then a wide field for the operations of the mechanic is opened up. Here, then, the farmer is to decide; and in truth the decision is easily made; for surely all will agree that what is wanted is a seed-bed, and that, as far as the farmer is concerned, it matters little to him whether he obtains this by one process or another. "What we want," says a well-known and graphic writer on this point, "is the end: we care not for the process. Give me a seed-bed, show me the soil *comminuted, aërated*, and *inverted*, six or eight inches deep, and I will not ask how it came so. If you wanted your coffee ground for breakfast to a certain fineness of texture, would you be very particular to ask whether the mill that crushed the fragrant berry had worked by horizontal, vertical, alternate, elbow-crank, or by circular motion?" But the misfortune of the thing in practice is, that farmers *will* ask how the seed-bed is prepared, and, what is worse, will insist upon its being prepared in certain ways, according to preconceived notions. Hence the mind is muddled, by thinking more of the means than the end; and the untoward influence extends itself to our engineers and mechanics, who retard the progress of the new power by endeavouring to yoke it to the old implement; thus mixing up two points which have in reality no connexion with each other; for the questions, "How can steam be made available in the preparation of the soil?" and "Must it be so through the medium of the plough?" are very distinct. The real question for the engineer to consider is, "How can steam be made available to the purposes of cultivation?" And this ought to be philosophically considered, without any reference whatever to established methods of procedure.

It has been unfortunate for the rapid progress of steam culture, that in the minds of the majority of those who have paid attention to its realization, cultivation has been considered to be ploughing or digging, or has been associated in a manner more or less decided, with some established implements; whereas, had the question been, "Here is a new power; how best can I apply it?" we believe that greater progress had been made. "The idea of ploughing," says the writer already quoted—and his words possess peculiar importance at the present juncture—"and digging, stands like a thick blind before the whole philosophy of the subject, and screens the inventive mechanician from the simple application of his mind to the *quod est faciendam*: his faculties are clogged, stupified, held in check by the pestering contemplation of *processes* that enter not necessarily into the problem to be solved, nor need appear in its solution. They are unessential to the matter."

However much daily experience may narrow the question just considered, to a point at which it can be easily set at rest, it is difficult to say; but in connection with another point in steam culture, experience speaks out in a way decided and explicit: we refer to the previous preparation of the land, to enable the power of steam to exercise its fullest capabilities. There is no doubt whatever in the minds of thinking men that if the power of steam is to be made available in an extended and economical way to the cultivation of our fields, these must be arranged and modified in character to admit of the free and full exercise of its power. As we have already said, there must be a mutual adaptation of material and machinery; the machine must be fitted to work the material into the final condition which is desiderated, and the material must not present any peculiarities which will prevent the machine giving its best and its quickest work. Those peculiarities, if they exist, must be got rid of—they are only prejudicial; and if they do harm to the machine, it is not to be blamed as unfit for its work. The blame lies in allowing it to operate upon material for the preparation of which it was never intended. It is folly to expect a spinning machine to weave, or a plough to dig. We may perhaps be permitted to repeat the following sentences, which we have elsewhere given, bearing on the point now under consideration: "The soil should be rendered as friable as possible, and every impediment removed which would check the speed at which the engine can work. We are well aware that this will by many be objected to, as involving unnecessary labour; but it will be obvious, on consideration, that the more uniform in character we can obtain the material upon which any machine we employ is to operate, the more uniform will be the result, and by consequence the more economically and certainly will it be obtained. Take, for instance, the various processes involved in the manufacture of cotton. No objection is made by the manufacturer to the preliminary processes by which the material is prepared to undergo the finishing operations. On the contrary, every exertion is made to secure mechanism by which these can best be accomplished; manufacturers being well aware that the more completely what is called the "preparation" is effected, the more satisfactory will be the after-process or "spinning." It would be, to say the least, a roundabout away of proceeding to take the crude cotton, and spin it as best they could, and thereafter have machinery to rectify all the defects brought about by want of attention to those preliminary processes calculated to bring the material into the best condition fitted for the final ones. And yet something of this kind is done every day in farming. We see processes carried on at great expense of time and trouble, and complicated mechanism to aid them withal, which are, in fact, the mere necessities of an unphilosophical mode of culture, that neglects the preliminary process, which if effected would leave the soil in the condition best calculated to produce the crop, and obviate all necessity for after-proceedings; these after-proceedings being, in fact, attempts to get rid of peculiarities which could have been prevented more quickly and economically at first. It is, in truth, a much more reasonable way to prevent weeds from growing, than to invent and use an elaborate machine to pluck them up when grown; to pick out boulders from the path of a steam-plough than to spend time and money in repairs of accidents which their presence has brought about, or to stop the progress of the machine till the impediment has been removed. It is by far the most philosophical way, as it certainly will be the most economical, to bring the material on which any machine is to operate to that condition which will enable the machine to perform its work with as little variation as possible. The more any piece of agricultural mechanism departs from the character of an implement, and approaches to that of a machine, the greater is the necessity for the preparation of the material."* All experience, indeed, in steam-cultivation, is gradually narrowing itself to this point—"preliminary preparation" of the land. The Marquis of Tweeddale —who has done as much as any one, if large expenditure of time and money can do anything, towards the solution of the great problem, albeit pæans have not been much chanted in his praise in the public press—states that "the more fully he investigates the subject, the more fully is he convinced of its necessity." Mr. J. A. Williams, who can boast of no small experience on the subject, also states that it is essential for the fair working of steam cultivation, that hedge-rows and timber be no longer obstacles in its path; that pits shall be filled up, boulders extracted from the soil, and that beneficial exchanges of contiguous lands be made by the respective owners, so that the "rough places be made plain, and the crooked places straight." To this complexion must it come at last: we have now arrived at that stage in the history of steam-cultivation, the experience of which enables us with confidence to say that the engineer has done—or done so nearly that little remains to be accomplished by him—his part towards the solution of the problem, so far as steam-*ploughing* is concerned: it remains for the landlord and the farmer to do their duty. Unsatisfactory as it may seem to many, who look with distrust and doubt upon the direction in which agricultural progress is being made, it is nevertheless the fact that all agricultural operations are fast approaching that point where their daily routine will have much of the precision and mechanical fitness, one part to another, which characterizes the routine of our manufactures. At one period in the history of those manufactures, the aggregate result of the labour of those engaged in them was attained by the divided and somewhat desultory duties performed in isolated positions. In quiet country nooks, and at cheery firesides, the hum of the spinning-wheel, and the rattle of the weaver's shuttle, were heard, mixed with the low of cattle or the bark of the farmhouse-dog. But when Arkwright's and Horrocks' genius brought a new power into existence, a concentration of capability was demanded, which speedily effected changes more striking far than ever the fabled Proteus made. The hum of a single wheel and the clack of a solitary shuttle gave way to the din of thousands of revolving wheels and clanking levers; streams, pure in days of yore, grew black and murky as the smoke which poured from factory-chimneys on their banks, once besprent with buttercups and with daisies, now brick-red with the crowded homes of a thousand workers. So, now that agriculturists have invoked a new power to do their bidding—and the spirits, unlike those of Glendower, *have* come when they are called upon—in like manner will changes of as striking a character, though of course much modified in detail, be effected in the operations of agriculture, as have been effected by the same power in those of manufactures. The giant power of steam will disdain to be yoked to the puny processes, and to be cramped in operation by the petty arrangements of olden times; she will demand processes in which she will give her full and gigantic aid, and arrangements in which she can display to the utmost verge her expansive powers. Steam, as it has revolutionized the manufactures, must, if allowed to develope her full powers, revolutionize the agriculture of Great Britain. As Steam, joined to the thundering car and the gliding iron, has almost annihilated space, and rendered distances which years ago comprehended days now compassed by hours; as she has almost, by the paddle-plash of her powerful steamers, rendered harmless the winds which lash into fury the waves of old ocean; so must it, in the good time coming, vastly increase the capabilities of the soil, change places now gloomy with sad sterility to spots delightful to the eye and cheerful to the heart of man; make dreary deserts of the blackened moss, dark now and "brown as is the ribbed sea sand," green then with the glad trophies of the husbandman; and tracts, where now wave the water-rush, be covered then—wavingly wooing the summer breezes—with wide expanses golden with the glories of the summer corn.

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* "The Book of Farm Implements and Machinery" (p. 230). Edited by Henry Stephens. Blackwood: Edinburgh and London.

Such, and no other, do we deem the future of agriculture, aided by steam, likely to be; and it behoves those interested to consider well how best they can aid its progress. The engineer has done nobly his part. With his mechanical genius, and the patient perseverance which is ever its concomitant, he has effected much; it remains for the landowner and the farmer to so further aid him by doing their part, that he may do more. It is only by a conjunction of effort—the farmer in his fields, and the engineer at his mechanism—that rapid progress is to be secured. Each performing his respective duties, and performing them carefully and well, we may soon see the good time so often sung about as coming, come at last; and, with the blessings of Providence on their efforts, witness the prophecies of old receive their consummation, when the sterile places shall be made glad, the desert be made to blossom like the rose, and even the very hill-tops fruitful with the harvest, which makes happy the homes of men, lightens the labour of the field, and gladdens the gaieties of the hearth.

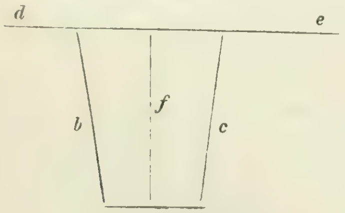
In reviewing the novelties in agricultural mechanism presented at the Chester Show, our attention is next directed to those connected with the "culture of the soil," to which we have not yet made reference. Although the plough, and cognate implements, as grubbers, &c., form important classes in this department, we pass them for the present, not only from the circumstance that comparatively little novelty was presented in connection with these implements, but inasmuch as we propose at some future period—before, or at least immediately after, the trials of this class at the Royal Society's Meeting at Warwick next year—to go somewhat fully into the subject of the plough, the philosophy of its operation, and the peculiarities of its construction, as exemplified in the "makes" of the most celebrated manufacturers. We may remark, however, in passing, that the *paring plough* of Mr. Woolfe, of Gloucester—to which a silver medal was deservedly awarded—is worthy of the attention of our practical agriculturists, not only on account of the ingenuity of its arrangements, but from the precision and accuracy with which it seems likely to do its work.

Narrowing, then, in this way, the field of view of implements cultural, we have at once presented to our notice those classes of machines which have for their object the distribution of seed or manure, and the cleaning of the growing crops, as horse hoes, &c. In the first of these classes we have to draw the attention of the reader to the dry manure distributor of Messrs. Reeves, of Bratton, Westbury, Wilts. This is capable of distributing soot, guano, or artificial manures with regularity, and in quantity varying from 4 to 100 bushels per acre. The manure box, which in length is equal to the breadth of ground covered with the manure, has a curved or semi-circular instead of a rectangular bottom. In the side of the box—at the back of the machine—and at the curved part of it, a series of apertures are made, through which the manure passes on its way for distribution over the surface. A slide fits the curved part of the box, and by means of a rack at one end of it, into which a pinion gears, actuated by a lever within easy reach of the attendant, it is made to cover up entirely, or open to any desired extent, the apertures through which the manure passes. To keep the manure in the box pulverized, and in a condition in which it can pass easily out through the apertures without clogging, a shaft is made to revolve in the curved part; this shaft being provided with blades projecting from the opposite ends of each diameter: these do not project at right angles to the central axis of the shaft, but are inclined, two in one and two in the opposite direction. The revolution of the shaft causes the inclined blades so to act on the manure, that a lateral to-and-fro motion is given to it while lying in the box; so that it is, as it were, rubbed out at the apertures, and passes therefrom in a granulated condition. When the machine is used in conjunction with the corn drill, funnels are attached to the apertures in the manure box, which lead the manure to the lines made by the coulters. A graduated plate is provided, over which the handle working the regulating slide passes: according to the position of the handle on the plate is the quantity of manure delivered.

To Messrs. Priest and Woolnough, of Kingston-on-Thames, a silver medal was awarded for their "blast drill for destroying the fly on turnips," the invention of Mr. Jephson Rowley, of Rowthorn, near Chesterfield; the purpose for which it is designed being effected by the following ingenious arrangements: On a frame and wheels resembling in general features that of the ordinary drill, a box containing lime in a state of fine powder is mounted. To the lower part of the framing a pair of fanners is attached, and which receive a rapid motion of revolution through the agency of drums and strap, the primary motion being obtained from the driving wheel of the machine. The fanners draw or exhaust through one pipe, and force or propel through another which is placed in the opposite direction. The orifices of the exhaust pipes are supplied with curtains, which extend a short distance below and around them. As the machine progresses over the land, these curtains brushing slightly over the plants disturb the flies, which rise up in their endeavour to escape, but are caught in the whirl of air created by the fanners, and swept up the pipe, and are —along with the powdered lime from the box—projected through the other pipe on to the surface of the soil, which thus receives a top-dressing of lime mixed with the dead flies.

Messrs. Priest and Woolnough exhibited a "skid" or small "turn-table," also the invention of Mr. Jephson Rowley, used for facilitating the turning of horse-hoes and drills at the headlands. The "skid" is placed on the ground in the desired position, and one of the wheels of the drill or horse-hoe runs on to one of the "tracks" which cross its diameter. The drill is then wheeled round with the skid till it is turned in the opposite direction, when it is run off in the exact line of motion required.

Messrs. Garrett, of Saxmundham, exhibited a specimen of their celebrated "horse-hoe," exemplifying their recently improved method of adjusting the hoe-blades. We presume our readers to be intimately acquainted with the original mechanism by which this adjustment was effected, namely, through the medium of the eccentric wheels on the cross shaft, and the swing or side levers which carry the mortice bar, to which the coulter stalks are attached; we therefore proceed to explain the improved mechanism.



Let *a* represent the mortice-bar to which the ends of the horizontal levers carrying the vertical coulter-stalks are jointed. Jointed to the ends of this are two levers (*b* and *c*); their upper ends are terminated with nuts, which work on a horizontal bar (*e d*), one end of which is provided with a right-hand, the other with a left-handed screw, the threads being in opposite directions, thus \ / . The mortice-bar (*a*) has a bar connected with it, which extends upwards, and slides in a slotted guide (*f*). On turning, by means of a handle, the bar or screw shaft (*e d*), the nuts at the upper ends of the levers (*c b*) are made to recede from, or approach to each other, according to the direction in which the screw-shaft (*e d*) is turned. The consequence of the movement is that the vertical bar of the mortice-bar (*a*) slides either in or out of the slot in the guide (*f*); thus raising or depressing the mortice-bar (*a*), and through it the ends of the horizontal levers to which the coulter stalks are affixed. The outer ends of these horizontal levers carrying the coulter stalks are kept at the same level by means of the eccentric wheels fixed on the cross shaft at the back of the machine; the angle at which the coulter stalks are pointed to the surface of the ground varying with the raising or depressing of the mortice bar (*a*) in the diagram.

A form of horse-hoe, invented by Mr. John Taylor, of Swanton Novers, Thetford, Norfolk, presenting a very simple means of giving the hoes a lateral adjustment, was also exhibited by Messrs Garrett. In this machine the hoes are all mounted on independent levers, jointed to a balance or swing frame, which by preference of the inventor has its fulcrum on the axis of the driving wheels, on which it is capable of sliding laterally, or from side to side. To the upper side of the balance or swing frame, a rack is provided. Engaging with this is a small pinion keyed on the end of a horizontal shaft, and working in suitable bearings, attached to the framing of the machine. The outer end of this shaft is provided with a cross or double handle. By turning this handle from right to left, the pinion gearing with the rack in the frame carrying the hoes moves the frame in the opposite direction, or from left to right. By moving the cross handle through a small portion of its revolution, any amount of adjustment of the hoes can be given with great ease.

Not the least interesting feature of the meeting was the trial of machines used in the preparation of the food for stock, as straw-cutters, root-cutters, root-pulpers, oil-cake crushers, oat-bruisers, and linseed mills.

In testing the working capabilities of these machines, the dynamometer, invented by Mr. Amos, was used, by which a measure of the force which the machine takes to work it is obtained, represented by so many pounds raised one foot high per minute, and also the number of revolutions the machine under trial makes during the time of its working. The arrangements, and mode of operation of the dynamometer are difficult to be explained without the aid of somewhat elaborate drawings. As, however, some of our readers may be interested in it, we shall endeavour to give here such a notice of its leading features as will convey some notion of its mode of working.

To the shaft (*a*) of the machine under trial, a pulley (*b*) of determinate breadth and diameter is keyed; a driving-band connects this with a pulley (*c*) of same diameter. This pulley (*c*) is fixed on the shaft (*d*) of the dynamometer, which is thus placed near the machine, the working of which is to be tested. The end (*e*) of the shaft *d*, opposite to that on which the pulley (*c*) is fixed, is passed into a rectangular slot (*f*), made in the side of a long lever (*g*), which has its centre of vibration on a shaft (*n*) parallel to, and at some distance from the shaft *d*. The short end of the lever *g* is provided with a weight (*i*), and the other with a dish, in which weights are placed. The shaft *d* is provided with a toothed-wheel (*k*), which engages with another wheel (*l*), keyed on the shaft (*h*). To the outer extremity of the shaft *h*, a fly-wheel (*m*) is keyed on, provided with a handle (*n*), the radius of which is equal to the radius of the pulley *b* or *c*. When the machine is at rest, the weight (*i*) at the end of the lever (*g*) is such, that the end (*e*) of the shaft *d* remains balanced or unsupported in the slot (*f*) of the lever (*g*). The force required to turn the pulley (*b*) of the machine under trial, is represented by that which is required to turn the fly-wheel (*m*) with the handle (*n*). In commencing to turn the fly-wheel (*m*), the tendency of the machine which is being tried, is to prevent the toothed wheel (*k*) in the shaft *d* from turning, but rather to lift it up, so that the end (*e*) of the shaft *d* rises up in the rectangular slot (*f*) in the lever (*g*), which is in its turn raised, so that the end with its dish (*i*) is lifted up. In this dish weights are placed till the end (*e*) of the shaft (*d*) falls in the slot (*f*) of the lever (*g*); and the toothed wheels (*k* and *l*) begin to revolve. The weights thus obtained in the dish at the end of the lever (*g*) is a measure of the force in lbs. raised one foot high per minute, which the machine takes to work it; the number of revolutions made during the time of working being registered by a counter attached to the dynamometer.

The straw cutters were divided into two classes—"hand-worked," and "steam-worked;" the former being subjected to a trial of 5, the "steam-worked" to 3 minutes. The machines worked by hand were, according to the conditions of trial, to be limited to the following speed—the length of "cut" taken by each being ⅜ths of an inch—42 revolutions per minute for a 12-inch handle or crank, 37 for a 14-inch, and 32 for a 16-inch lever. The driving pulley of the dynamometer to be worked at the rate of 31½ revolutions per minute. For "steam-worked" machines, the breadth of driving-pulley to be not less than 5 inches, working with a circumferential velocity of 900 feet per minute.

In the department of straw cutters there was little novelty; the only two machines possessing any being those of Mr. Snowden of Gloucester, and Mr. F. P. Walker of Manchester. The former of these machines we described in our article on the "Novelties of the Smithfield Show of 1857;" the latter we may now briefly glance at. In Mr. Walker's machine the knife is straight edged, and is easily removed for repair or sharpening. Its motion exactly resembles that of the connecting rod which connects the driving wheels of a locomotive engine; having thus a double motion—lateral or sideways, and downwards: in this, according to the inventor, getting an exact imitation of the razor-like movement which gives a clean cut at the least expenditure of power. The straw is not fed continuously, but is brought up to the action of the knife at intervals, these corresponding to the periods when the knife is at that part of its path where it is away from the mouth of the feeder. The straw in this way, therefore, never presses against the knife; a fault possessed by nearly every other machine, in a manner more or less decided. From the mode in which the "feed rollers" receive their motion, the length of "cut" is very rapidly adjusted. A vertical wheel, attached to the end of the feed roller, receives alternate movements, through the medium of a click at the end of a lever, this lever being jointed to a stud placed in a slot in a face-wheel, having continuous motion. By moving this stud to or from the centre of the face-wheel, the length of stroke of the click-lever is shortened or extended, and the feed-roller receives movement at intervals more or less remote, thus altering the length of cut as desired.

The following is a statement of the results of the trials of straw cutters:—

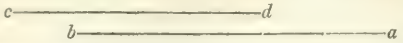
WORKED BY HAND; TIME OF WORKING FIVE MINUTES.

Exhibiters.	Quantity cut.	Revolutions.
Turner, Ipswich	22½lbs.	20,500
Richmond and Chandler, Salford	24½lbs.	18,500
Smith and Ashby, Stamford	20¾lbs	19,800
Ransomes and Sims, Ipswich	25½lbs.	16,965
G. Page and Co., Bedford	24½lbs.	18,575
Mellard, Rugeley	15 lbs.	18,420
Hill and Smith, Brierley........	23½lbs.	20,410
Barrett, Exall, and Andrewes, Reading	19½lbs.	16,100

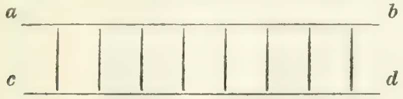
WORKED BY STEAM-POWER; TIME OF WORKING THREE MINUTES.

Barrett, Exall, and Andrewes, Reading	99½lbs.	137,000
Smith and Ashby, Stamford	107¾lbs.	181,050
Alcock, Radcliffe-on-Trent......	68¾lbs.	105,040
H. Carson, Warminster	114¾lbs.	143,260
Walker, Maryport	28 lbs.	75,050
Cornes, Nantwich	127¾lbs.	126,650
Bentall, Heybaidge............	63½lbs.	162,430
Ransomes and Sims, Ipswich....	152 lbs.	72,066
Garrett and Sons, Saxmundham..	160 lbs.	132,786
Richmond and Chandler, Salford	173¾lbs.	79,733

As in the department of straw cutters, so in that of root cutters and pulpers, there was little novelty to notice; the most notable exception to this being the root-cutter of Ransomes and Sims, the invention of Mr. Biddell, their talented and enterprising manager. This, whether from the decided novelty yet simplicity of its arrangements, or from the high class of work which it performed, is worthy of detailed notice here. Unlike other machines of this class, the cutters are stationary, while the roots to be cut by them are put in motion. The roots are placed in receptacles, three in number, in a revolving hopper, which at a considerable velocity revolves horizontally through the medium of a vertical pinion engaging with a circular rack or toothed wheel provided to the under side of hopper. The hopper is conical, the sides forming a considerable angle with its bottom, and provided with a series of rectangular slits, through which stones, &c., are allowed to pass. As before stated, the hopper is divided into three receptacles; the sides of these are not at right-angles to the bottom of hopper, but slope inwards as they descend, their surfaces being waved or curved like that of a screw propeller. The compartments are wider at the bottom than the top, all the sides presenting sloping or curved surfaces. By this form of compartment, the roots have always a tendency to press toward the bottom of the revolving hopper, and to be kept in contact with the cutting edges. The bottom of the hopper is formed with stationary plates, the surfaces of which are planed and polished truly, and form planes of different elevation, thus—



As the roots lying on the part *a* are brought up by the action of the revolving hopper to the edge *d*, which is sharpened to act as a knife, they are caught by the edge, and slices taken off them corresponding in thickness to the space between the two plates *a b*, *c d*. Whilst the larger parts of the roots are carried on to the action of the next cutting edge, the parts cut pass along the plate *a*, *b*, and pass out at the part *c b*, and fall into a vessel placed beneath to retain them. The line of cutting edge *(d)* is not right-lined, that is radial from the centre to the circumference of bottom plate, but is curved in outline: this facilitates the cutting action of the edge, giving to it a double action, lateral as well as direct. As thus arranged, the machine acts as a "turnip-slicer for *cattle*," the breadth of the slices being regulated by the diameter of the root being cut. To cut narrow strips from the turnips —or "fingers"—for *sheep*, the following simple arrangement is all that is necessary: "Let the lines"—and here we quote from an article furnished by us, to the October number of the *Journal of Agriculture*—"*a b*, *c d*, represent a side-view of the upper and lower plates of the bottom of the hopper, of which *a b* is the cutting edge. The breadth of the slices passing out from below these will obviously be regulated by the size of the turnip, or cross-section which it presents at the time it is being cut; but suppose a series of cutters to be placed so that the space between *a b*, *c d*, is filled up at intervals with the edges of cross-cutters, as shown by the vertical lines, it is evident that the pieces will be cut into breadths corresponding to the distance between any two of the vertical knives. These vertical cutters are attached to a plate hinged at one end to a point below the bottom of the hopper, and which, by means of a cross-handle outside the framing of the machine, is easily lifted up, so as to fill up the space in the manner shown in the last diagram, being retained in this position by a catch-bolt. On withdrawing the bolt, the plate falls down, leaving the machine ready to cut the roots into large slices. The change from cutting large to small pieces, and *vice versâ*, is thus made instantly." In this machine now described, the great desideratum of "cutting the last piece" is obtained with very simple means. All pieces passing through between the plates *a b*, *c d* (1st diagram), must of necessity be equal to the space between the plates; and this space is equal to the thickness of slice desired. Some may be thinner, but none can be thicker, than this.



A disc root-pulper was exhibited by Mr. B. Samuelson, of Banbury, the invention of Mr. T. Brewer, of the same place. The roots are first cut into slices by the revolving disc cutters, and are afterwards made to pass through rectangular apertures in the disc. They are, on passing through these, taken up by projections on the back of the disc, and forced through between a series of cutting edges, or knives, and by this means reduced to a pulp. The disc is partially covered by shields, which have also projections provided to their inner surfaces. The projections upon the revolving disc pass through those on the shield.

The following is a statement of the results of the trials of the turnip-cutters and root-pulpers; time of trial, 3 minutes:

TURNIP-CUTTERS.

Exhibiters.	Quantity cut.	Revolutions.
Ransomes and Sims—		
Small cutter	93½lbs.	23,500
Large cutter	145½lbs.	16,030
John Warner and Sons	167¾lbs.	25,400
Bernhard Samuelson—		
Large cutter	116 lbs.	9,220
Small cutter	37¾lbs.	5,790
Hugh Carson	138¾lbs.	14,700
Barnard and Bishop	142¾lbs.	11,520
Pickslev, Sims, and Co.	97¼lbs.	9,300
ROOT-PULPERS.		
Ransomes and Sims	79 lbs.	22,195
B. Samuelson	36¼lbs.	11,470
W. Goulding and Co.	100 lbs.	30,420
E. H. Bentall	72 lbs.	23,100
B. Samuelson	62 lbs.	30,150
S. Woods	52½lbs.	24,000
Barnard and Bishop	89 lbs.	31,945
A. and S. Fry	80¾lbs.	38,400

R. S. B.

STALL OR HOUSE-FEEDING SHEEP

VERSUS

WINTERING THEM WITHOUT SHELTER

SIR,—If memory serves me right, seven years back, at the great Christmas Cattle Market in London, and at the Rum Tun, Smithfield, I met with a plain-dressed highly talented low-country Norfolk farmer, who had tried an experiment twice with a light-woolled sheep and a heavy-woolled Lincoln; both were house-fed from Christmas to the 6th of April, when the light-woolled sheep had gained above 10lbs. the most weight; the short-woolled sheep cut 6½lbs. of wool, and the Lincoln cut 17lbs. of wool. It is plain the Lincoln was over-heated, and lost part of his weight in sweat. He tried the experiment a second time, and partly sheared the Lincoln, leaving two inches of wool upon him; both were house-fed the same length of time as before, when the Lincoln gained, through losing his wool, 10lbs. the most weight. "I tried," said the farmer, "another experiment with four fat sheep, two Lincoln and two light-wools, from Christmas to the 1st of April, upon a piece of rich gray marsh-land near the sea fenced with dykes. The bleak north-east winds cut up the short-wools so much, that when weighed alive the 1st of April the short-wools had lost 12lbs. each sheep, whilst the Lincolns had kept their full weight of mutton." A great deal of useful information may be taken from the above; and that all heavy-woolled sheep ought to be shorn before the weather is too hot.

Millfield, Peterborough, SAMUEL ARNSBY.
Oct. 12th, 1858.

LONG SUTTON AGRICULTURAL ASSOCIATION.

The spirited market town of Long Sutton, in Lincolnshire, supports a large association, principally for the rewarding of labourers and school children, and also for encouraging agricultural improvements generally. Wednesday, Oct. 13th, was the annual field-day, when fifty ploughs competed for prizes; and it appeared that the two-wheeled iron ploughs not only make the best work, but that they are fast superseding the single-wheel and swing wood ploughs. Trials with the dynamometer showed that the wheel ploughs were of lighter draught than the swing; while but little difference in this respect could be observed between the iron and wood implements. The "All England" Champion Prize, and the "new hat," for the best work in the field, was won by a man from Bedford, ploughman for Messrs J. and F. Howard; of course, with one of their P.P. ploughs.

The principal feature of the meeting, however, consisted in the exhibition of three steam cultivators, a new reaping machine, and other novelties, which attracted a great assemblage of visitors. Mr. Walker, of Terrington, near Lynn, made quite a sensation in the neighbourhood with the performance of his travelling steam engine, manufactured by Mr. Savage, of Lynn. It is a seven-horse portable single-cylinder engine, mounted midway upon a pair of large carriage-wheels, eight feet diameter, with broad felloes. Both wheels are driven by reducing gear-work from the crank-shaft, much after the manner of Boydell's locomotive, and the steering is effected by one wheel in front, turning in a transom. But having no "endless rails," this ponderous machine is unable to traverse a miry or rugged road, much less to traverse over a ploughed field, dragging implements behind it; and as there had been a heavy fall of rain the previous night, the traction performances of the megatherium were limited to the hard turnpike road, on which it brought out of Norfolk a set of the Woolston steam-cultivating apparatus, and a portable engine for exhibition, and to the streets and market-place, in which it travelled backward and forward, turned short round, and displayed to the wondering Suttonians all the tractability of a domesticated monster, evidently possessing tremendous weight and power. In such a level marsh district, where there are no gradients but those of the bridges, there is much advantage to be looked for in an engine that can take a cultivating apparatus or a thrashing-machine about from farm to farm, thrash corn and draw it in waggons to the market, sea-port, or railway, and carry back coal or cake, or manure. Only the roads along lanes and across fields must be hard and in good repair.

Mr. Robert Coe, of Tilney, Norfolk, showed in operation a set of Smith's steam cultivating machinery, as manufactured by Messrs. Howard, of Bedford, which worked in its usual effective manner upon a piece of stubble land. In the same field was the steam-cultivating machinery shown by Mr. T. B. Dring, of Gedney Marsh, near Long Sutton. The method of hauling is that of Mr. Smith, with sundry alterations. The engine and windlass are stationed midway down one side of the plot to be cultivated, as Mr. Fowler's originally was. The ropes are led out from the windlass round two pulleys fixed on a frame—which arrangement is called that of "double snatch-blocks"; the ropes then diverge to the two ends of the field, to anchored pulleys set down halfway along the headlands, and then from these pulleys to the removable pulleys at the end of the work. There are thus six pulleys in action instead of only four, as in Mr. Smith's arrangement shown by Mr. Coe; but the length of rope is somewhat less, and the engine is nearer to her work. The "cultivator" worked was Mr. Smith's, but made of extra width so as to take a greater breadth of ground at a time. The ground in a moist state was beautifully broken up, ready for cleaning when dry, deeply enough to be under the twitch and rubbish, yet leaving all on the top open for extraction. Those worked by an eight-horse single-cylinder engine, the iron-wire rope has been liable to very frequent breakage, and broke once during the operations of Wednesday, so that it is difficult to estimate the probable expense of the wear of the rope; but reckoning this at 1s. 6d. per acre, and fixing the general wear and tear on the remainder of the machinery at 20 per cent. for 200 days in a year, the total cost of working was about 36s. per day—that is, deep-working with the three-tined grubber at six acres a-day would cost 6s. an acre; scarifying eight acres a-day would cost 4s. 6d. per acre; and paring ten acres a-day would cost 3s. 7d. per acre. However, it is now acknowledged everywhere that 6s. or 8s. spent in breaking up an acre of foul stubble in autumn will save at least twice this sum in spring tillage that would otherwise be necessary; while the advantage of having the fallow work so forward is of still greater value to the farmer. In this district, especially, where a small proportion of the arable land is in clover and seeds, and so much in spring corn, potatoes, &c., there is always as much ground to be cleaned for wheat-sowing as the teams can manage; unless, indeed, in an unprecedentedly fine season, such as the present, when some farmers contrive to break up a small part of their wheat stubble for fallows before beginning wheat-seeding.

The chief attraction of the day was the new steam-plough invented and patented by Mr. Chandler, of Bow, London, and Mr. Oliver, of Hatfield; exhibited on this occasion by Mr. Dring, Mr. Chandler being also present to superintend the performance of this the *second* implement manufactured, and therefore minus several more recent improvements in detail. Two sets of ploughs are arranged three at each end of the frame, pointing towards each other, one set being above ground, while the others are in work, just as in Mr. Fowler's plough; but instead of the beams reaching from end to end, they are in two portions, so that the two sets of ploughs can be raised or lowered by rack and pinion in a central standard frame, the two sets being also made to balance each other by rods from each end, connected with rocking bars on the top of the frame. By this construction, a short and compact machine is secured, namely, 12½ feet, weighing about 12 cwt. There are two wheels near the ends running on the unploughed ground, and one central wheel running along the bottom of the furrow left at the last course. The furrow wheels are ribbed like the discs of a Cambridge roller, and are turned in swivels so as to guide the plough: the ploughman sitting on the hinder end of the frame, and steering with a lever for the purpose. The work is all laid one way, the furrows being each 9 inches wide and any depth desired. The ploughs in this particular implement are too close together, and the coulters gathered rubbish, occasioning much clogging; but this can be easily rectified; there will also be added adjustments for taking narrower or wider furrows, and the travelling wheels will be made larger. Compared with Mr. Fowler's four-furrow implement exhibited last year, the general observation made was that this is neater and lighter; and owing to the more favourable state of the ground, the ploughing was certainly better done. But Mr. Fowler's three-furrow implement is of simpler construction than this, and, for anything we can see, quite as efficient in work, while it ploughs out and sets in at the ends in as ready and neat a manner as this does. The mode of steerage we consider no improvement upon Mr. Fowler's, and the draught of this implement running empty on the top of the land is heavier rather than less. The price of the plough for three furrows is about 50 guineas.

The plot was only 120 yards in length, so that less ground was ploughed than if the length had been 200 or 300 yards, owing to the frequent turnings. The journey from end to end took about 1½ minutes; the turnings averaged 35 seconds, or nearly twice as long as the turnings of the scarifier. The quantity of land ploughed in one hour was 1 rood 25 perches, or at the rate of 4 acres in ten hours. Had the field been larger, probably 5 acres in ten hours would have been the amount of work done. The land (an alluvial loam, perfectly free from stones) was moist, and in a very favourable condition for ploughing; and as the draught of a plough in the adjoining field of clover ley was about 4 cwt., the draught here was evidently somewhat less. In fact, the 8-horse engine pulled the implement at the pace of three miles an hour, turing over three furrows, each 9 inches wide by 6 deep. The cost of this easy ploughing, at the estimated expense, was 9s. per acre for this short length of field, or 7s. 3d. an acre, if 5 acres a day had been done by means of larger furrows.

The prize of the society was awarded to Mr. Dring, for his introduction into the neighbourhood of the steam cultivator, and the new plough in addition.

We may here add, that Messrs. Chandler and Oliver's own system of hauling the implement is by drums attached to the engine in a very simple manner, instead of having a separate windlass driven by a strap.

However advantageous the stationary engine method may be in some respects, it is certain that Mr. Fowler's self-shifting engine and anchorage moving along the headland, with rope running simply across the field and back, is the most economical, employing as it does only two men and two boys, instead of five men and a boy, and having so much less rope to drive and to wear.

This is not the season in which to exemplify the merits of a reaping machine, yet a great many persons inspected the new reaper, shown in work on some long stubble, by Mr. Cuthbert, of Newton-le-Willows, Bedale, Yorkshire. It is an improvement upon the Hussey machine; the driving-wheel is larger; the cutter-bar is hung upon a sling, giving a pendulating instead of sliding vibration, which very much eases the action, giving a very light draught. There is no self-delivery, but the platform can be adjusted for either a back or side delivery in sheaf, or removed for mowing and scattering grass or clover. The price is only 20 guineas. We may have to take an opportunity of alluding to the peculiarities of this simple machine at a future time: in a district producing very heavy and much-laid crops, the most difficult for a self-delivering apparatus to contend with, a general admiration of it was evinced; and the price as well as workmanship is well calculated to gain favour with those who hardly like to adopt the manual delivery.

Hansom's rotary potato digger, manufactured by Mr. Coleman, also drew a large share of attention, from the admirable manner in which it tossed out the tubers without waste or injury, at a cheap and expeditious rate.

Upwards of a hundred persons dined in the Corn Exchange, both members for the Southern Division of the County being present. The speeches were of a practical character, and the whole proceedings marked by no small degree of public spirit and agricultural enthusiasm.

DISTINGUISHED POTATOES.—In Gerard's time, 1597, Virginian potatoes, as they were then called, were just beginning to be known. A sweet potato had been previously known, which was used as a kind of confection at the tables of the rich. Of these, Gerard says, "They are used to be eaten rosted in the ashes; some when they be so rosted, infuse them, and sop them in wine; and others, to give them the greater grace in eating, do boil them with prunes and so eat them. And likewise others dresse them (being first rosted) with oile, vinegar, and salt, every man according to his own taste and liking; notwithstanding howsoever they be dressed, they comfort, nourish, and strengthen the bodie." These were sold by women, who stood about the Exchange with baskets. The same writer says of the common potato, which, for a considerable time after its introduction was a rarity, that, "It was likewise a foode, as also a meete for pleasure, being either rosted in the embers, or boiled and eaten with oile, vinegar, or dressed anie other way by the hand of some cunning in cookerie." They were originally the size of walnuts.—Philip's Progress of Agriculture.

THE BREEDING AND MANAGEMENT OF SHORTHORN STOCK.

BY A PRACTICAL MAN.

After calving, and when giving milk, cows should be well fed. If on inferior grass, 2 lbs. of linseed cake per day should be given when the cows are brought in to be milked; and if any of them are *poor*, double the allowance of linseed cake, and give a quart of oatmeal with hay-chaff. For winter food, Swedish turnips are objectionable when the milk is required for cream and butter; but if the milk is given to the calves, the cow should have one bushel of cut swedes, given at twice, 3 lbs. of linseed cake, and a quart of oatmeal per day, with as much hay-chaff as she can eat. Orange-jelly turnips, or drumhead cabbage, are good substitutes for swedes, when sweet cream and butter are required. In February, wurtzel can be given instead of turnips, beginning with a small quantity, and never exceeding half-a-bushel at a meal. The value of wurtzel as food for milking cows can scarcely be estimated, as it increases the supply of milk, and tends to keep the cows in health. Wurtzel will keep well until midsummer (and some until Michaelmas), so that, if the crop of grass is short, wurtzel can be given to the cows once or twice a day until the pastures improve. But neither wurtzel nor turnips should be given to cows in a *frozen state*; and in the event of these roots being frozen, cabbages, bran, and brewers' grains can be substituted. Potatoes are considered good food for cows; but since they have been subject to disease, potatoes have not been sufficiently cheap for this purpose. As previously suggested for heifers, the cows should be turned into yards during the day, (if they are kept tied up), or, better still, into a sound grass field near to the homestead, exercise being very desirable for them in cold weather. It is not advisable to expose them on cold wet days, or to searching east winds. Whether in the yards, sheds, or fields, cows should at all times have access to pure water; one or two strong rubbing posts are very useful in the yards and fields, and lumps of rock salt should be liberally placed in the mangers, for stock to lick at will. A *gradual* change of food for cows in-calf is always desirable, more particularly from dry food to moist, when the grass is young.

So many persons have written on the treatment of cows when in labour, and after calving, that I cannot add to the mass of information on this subject; but I may be allowed to say, that if the case appears favourable, and the presentation natural, the cow should be left to herself, in the field if the weather is dry and fine, but not in the hot sun; nor should she be touched until the calf is sufficiently forward to be taken away. If the presentation is not natural, and the case beyond the skill of the master and cowman, it is far better to send for a veterinary surgeon, than to distress the cow with long and futile efforts to extract the calf, too frequently endangering the lives of both. To understand the management of cows at this critical period, a man *must have experience*. The study of writings on the treatment of cows at this time is of little avail, unless the habits of the cows themselves are investigated. Some cows invariably have long and painful labours, others calve quickly and easily; and the owner of a herd of cows, by *practical application*, will gain additional information from each case. The cow should be allowed to lick the calf if she is quiet and appears fond of it; as sometimes a cow will destroy her offspring whilst the pains are strong upon her. In an hour or two the calf will be on its legs, and with a little assistance from the cowman it will soon learn to suck, and be out of harm's way. The cow must be milked soon after calving, and her udder be well and frequently fomented with warm water, and rubbed with fresh lard for several days. If it is a heifer's first calf, particular attention should be paid to the udder, or inflammation may ensue, and destroy her for milking purposes. If the cow seems exhausted after calving, a drink of warm oatmeal gruel, with a quart of good ale, can be given her, succeeded by a warm bran mash. Warm oatmeal gruel should be continued for three or four days with some sweet hay.

It is desirable to keep the cows daily cleansed from dirt, without rubbing off the hair. Cows can be cleaned at a trifling expense when they are kept in yards, as they can then lick and clean themselves. Their feet occasionally require paring and trimming, which can be readily done when the cow lies down; or her coarse hoofs can be sawn off, placing one foot at a time on a flat board. Few animals show the effects of ill-treatment more than the cow, which from improper usage becomes restless, timid, or savage, when wanted to be milked; refuses to give her milk; and allows no one to approach her when in the field; whereas the cow which is kindly treated is very quiet and docile, and can be "handled" at any time. Cows do not like fresh hands to milk them, and the same persons should be regularly engaged amongst them, as far as it is practicable.

I do not think that cows are affected by the season, so far as weather is concerned, in holding to the bull. A sudden change from mild or warm weather to extreme cold and wet within 24 hours after the cow has been bulled would, doubtless, have a great tendency to prevent conception, as the blood of the animal would experience a sudden chill, which is opposed to the theory of conception. But these cases are exceptional, and in the event of a whole herd frequently breaking their bulling, I should advise the state of the bull to be investigated, as the fault is more likely to rest with him.

Cows cease to breed at different ages; many fail after producing one, two, or three calves, whilst others breed regularly to fifteen years and upwards. A reference to the 11th vol. of "Coates's Herd Book" affords strong evidence of the advantage of putting heifers to the bull before they are two years old (confirming the opinion I have expressed), such heifers usually standing to their first leap, and afterwards proving regular breeders. As examples—"Lady Jane," vol. xi. page 525, calved Oct. 17, 1845, produced her first live calf in February, 1848, when twenty-eight months old, and had six single calves registered to May, 1854. "Rose de Meaux," vol. xi. page 679, calved Oct. 1841, produced her first live calf in February, 1844, when twenty-eight months old, and had ten single calves registered to Aug. 1854. No breeding can be more satisfactory than this, and the instances are numerous in the volume alluded to.

To those breeders who prefer a cow-house, or who wish to see their animals conveniently under one roof, I would recommend an inspection of Her Majesty's cow-house, at the Dairy Farm, Windsor. This splendid building, which is 132 feet long, 38 feet wide, and about 45 feet high, is erected with a span roof, under the centre of which is a raised platform, 6 feet 6 inches wide, paved with flag stones, for the accommodation of visitors to inspect the cows, which are arranged in pairs on either side, each pair having a lair 7 feet deep and 8 feet wide, the building containing 60 cows. Each cow has a separate feeding trough, with a water trough for a pair, the supply for which is derived from elevated cisterns. At the foot of the lair is a slate gutter, 12 inches wide and about 3 inches deep, which receives the urine and droppings; beyond which is an asphalte pathway, 6 feet wide, running round the building, with additional space at the ends. Numerous windows in the side walls afford light in the day time, and during feeding and milking hours at night the cows have the advantage of gas light, several lamps being suspended from the centre. Doors are conveniently placed for ingress and egress; and open yards with sheds adjoin, into which the cows can be at any time turned. The ventilation of this building is chiefly in the roof, and is very good. The requisite conveniences for stowing and preparing food for the cows of course appertain; and the possession of such a building, filled with the choicest specimens of shorthorns from the show-yards of our Royal Agricultural Society, would in some measure reconcile me to the plan of keeping them which I have so strongly deprecated.

In passing, the visitor to this "Royal cow-house" will find the homesteads at the Dairy Farm and at Shaw Farm, Windsor, well worth his inspection, as they are substantially but plainly built, and possess many conveniences which are not ordinarily met with. The excellent accommodation for the labourers must not be overlooked.

As evidence of the value of exercise to cows near calving, I am informed that from about 1830 to 1840 a Mr. George Lyon flourished in Yorkshire, who purchased great numbers of cows for London dairymen. Mr. Lyon usually selected the largest and finest cows, many of them being very fresh. The cows were driven to London at the rate of nine to twelve miles per day, the greater part of them calved on the road, the calves being sold to wayside farmers, or taken forward in carts, and the cows continuing their journey. Mr. Lyon was wont to say that he never lost a cow from calving after she had had three days' travelling.

Some cows are subject to falling down of the vagina or first passage, the cause and treatment of which is thus described by Skellett: "This is a complaint which, in cases of weakness, both precedes and follows calving; the womb and calf's head pressing upon the passage, make the latter fall down, which it does to a certain extent. Before calving little can be done to remedy it; but when it appears after it, it admits of a certain method of cure. When the parts are replaced, which is easily done, in order to retain them in their situation a stitch or two should be passed through the sides of the shape, by means of a packing needle threaded with common tape. The parts are to be embrocated with a decoction of bark with alum, and everything done to strengthen the general habit of the animal; for, as soon as the cow is in health and vigour, this displacement wears off. Before calving, the appearance of this complaint generally alarms those who have the management of cows, and they conceive that the womb will be entirely protruded: it is only necessary here to keep the animal in a position least favourable for the descent, and to give a stitch in the manner directed, which will prevent the protrusion going farther, till the operation of calving commences, when the parts are generally retracted, or go up of themselves."

Without expressing an opinion respecting the treatment recommended by Skellett, I quote from his work in the absence of better information. The science and skill of our modern veterinary professors may materially improve on the practitioner of twenty-five years ago.

For bad cases of this kind an inclined platform is necessary, so that the cow's hind quarters shall be raised from nine to twelve inches higher than her fore quarters. The cow should be tied up, and lie on sparred boards well littered, under which should be stones or flints for her water to pass through, with good drainage underneath, as the confinement consequent to this state renders cleanliness very necessary to the cow. The ascent to the platform must be gradual, and the cow can be led out for exercise as circumstances permit. For the satisfaction of those breeders who have cows in this condition, I may say that one of the most valuable breeding cows in England is thus afflicted; that she is constantly kept on a raised platform; safely produced a fine bull calf in the autumn of 1857, is again with calf, and looks healthy and well.

Although I do not advise the frequent use of bulling stocks, they are occasionally required, and are a necessary adjunct to a breeder's premises. A minute description of the stocks would needlessly lengthen this paper, but anyone desirous of having them constructed can readily inspect them on the premises of most of our established breeders.

A cattle van will be found of essential service to remove stock in times of difficulty. Such may arise from accidental lameness, the slippery state of the roads, or the distance from a railway station, &c. The van should have a let-down flap at either end, so that the animal may walk in at one end and out at the other, on removing the horse. If a cow heavy with calf has to be "backed" out of the van, she may be much frightened, and endanger the safety of herself and calf.

In the management of a herd of shorthorns much depends upon the cowman, who must be an early riser, quick, industrious, good-tempered, and clean in his person and habits. He must also be able to control and direct the young men who are under him, and check the least exhibition of temper or violence towards the stock. The cowman should be accustomed to keep a bulling book, to check against the master or bailiff; and to report accidents or doubtful symptoms to his master without delay. He must be able to bleed cattle, and have the necessary instruments at hand, in case of need; to keep a reserve of drinks for cows, and diarrhœa powders for calves; and watch the progress and the changes of the down-calvers with the greatest vigilance. I need scarcely say that the cowman should reside on the premises; that he should always be at his post; and that he should have a man within call at night, to assist him in taking a calf from a cow, if requisite, as favourable cases frequently need the services of two men. He should also be instructed in the use of the probang, in case a cow is choked; and of the trochar, in case she is blown; as either accident requires a prompt remedy, and the animal may be dead before other assistance can be obtained. A cowman's place is confining and anxious, though not laborious; and a good man deserves a master's encouragement.

We must now speak of bulls, the treatment best adapted to render them healthy and strong, and the condition they should be kept in for stock purposes.

I consider it very important the bull-calf should have an ample supply of new milk twice a-day until he is eight months old, and if the calf has plenty of milk he will require little other food. When a month old the calf may have some sweet hay to pull at, which will induce him to ruminate; and when four months old, in addition to hay, a small quantity of linseed-cake and a few slices of turnip may be given daily. Should the supply of milk run short, the linseed-cake can be increased, and a little oatmeal given, mixed with hay chaff. The food must all be of the best quality, and the milk pure, if the calf has less of it. Much watery drink and indifferent food have a tendency to weaken the organs of digestion, and to create a big belly, which is very objectionable in bull calves. The young bull should lie loose, in a roomy and airy shed, but well littered, and at the age of four months he should be accustomed to the use of a halter or headstall, be occasionally led round a paddock, at other times tied up for an hour, and every means taken to render him docile and tractable. As the bull increases in strength he should be exercised daily, and treated with the greatest kindness and carefulness. After eight months the calf may be gradually weaned from milk, by substituting linseed tea; and a peck of sliced turnips or wurzel may be given it daily, with 3lbs. linseed-cake, and a quart of oatmeal mixed with hay chaff. When between ten and twelve months old, the young bull should have a ring put in his nose. I prefer copper rings, which are made of three sizes, and are to be obtained in many parts of Yorkshire at 30s. per dozen. The nostril is usually pierced with a hot iron, or cut with a stamp nose-punch, and the ring riveted. The nostril will require rubbing with fresh lard for several days afterwards, and the bull should not be led by the ring until the wound is completely healed. Bull calves which are not desired for getting stock should be castrated at a month old, when the operation can be safely performed.

A young bull will serve a heifer, and get her with calf, when he is ten months old; but it is better not to work him until he is a year old, when the bull may be moderately used to small heifers, without fear of straining his loins or checking his growth. Bull calves are frequently allowed to run in the fields with a "nurse" cow, and suck her at will, gradually weaning themselves. Cases are known where such calves, at eight months old, have bulled their "nurse" and got her with calf. Care must be taken that the first heifers put to the bull are not too wide across the hips, and he should be brought out on an empty stomach, and have a good sight of the heifer before he is suffered to jump her. A fair commencement with a young bull is of much importance, as subsequent trouble is thereby avoided. If a heifer will stand quietly in a yard for the bull to serve her, it is far preferable to putting her into the stocks. One thorough jump is sufficient; and if the heifer passes six weeks without coming into season, it may be presumed the bull has "stopped" her. A bull is often suffered to run with cows in the field, and is driven to and from the homestead with them. There is no better plan of keeping and using a bull than this, and he is more likely to get the cows with calf, and continue to work, than under any other treatment. A pailful of boiled barley given to the bull once or twice a day, when he comes in with the cows, will be found beneficial. If the barley is well boiled, and diluted with a little water, the bull will drink it all. When a bull runs out, it is advisable to strap a board over his eyes, which will prevent him destroying trees or fences, and render him less dangerous to human beings in the event of his turning savage. From my knowledge of the effects of peas and beans as food for young bulls, I strongly object to their use, *excepting in very limited quantities*, being convinced that many valuable animals are irreparably injured by the immoderate use of such food. A bull in full work should be well, but not extravagantly fed. In the winter, one bushel of swedes, given at twice, 3 or 4 lbs. of linseed cake, with hay or cut chaff, daily, will keep a bull in good working order. If a bull is having five or six cows a week, he will neither get lazy nor fat on this food; but if he only has one or two cows a week, he will not require linseed cake. Barley-water is strongly recommended for drink when a bull is being worked hard. A bull must, in fact, be fed according to his work, and his nature and disposition must be studied; as one will not serve cows if he is poor, another will not serve if he is fresh, and a third will cease to work if he has not a good and regular supply of cows. I have used a bull which was fed simply on barley-straw and half-a-bushel of cut swedes daily. On this diet he would serve a cow a day, and stop them; but double his allowance of swedes, and give him 3 or 4 lbs. of linseed-cake daily, with hay, and he would soon cease to serve. Another bull, apparently short of stamina, would not serve at all on low diet, but stopped his cows when he was allowed 4 lbs. linseed-cake daily, with swedes and hay. It sometimes happens that a bull which is ready and active at serving cows, and apparently labours under no defect, will not get the cows with calf. I have never been so unfortunate as to use a bull of this description; but I know gentlemen who have, and who could in no way account for the bull's incompetency. When breeders have only one working bull, it is extremely mortifying to find him so worthless, as a whole herd of cows may lose a season before it is clearly ascertained where the fault lies.

Bulls cease to work at different ages. Many fail to serve at five or six years, whilst others work satisfactorily until ten or twelve years old. Mr. Bates' "Belvidere" served well and got calves until sixteen. Mr. Henry Smith, of Drax Abbey, used "Pilgrim" (4701), and "Captain Shaftoe" (6833), until each of them were thirteen years old; and I have Mr. Smith's authority for saying that the late calves by these bulls were quite equal to the early ones. Mr. Richard Booth's "Baron Warlaby," calved in May, 1845, I believe is serving cows at this time; and his "Vanguard," calved in April, 1847, is let out on hire at a great sum, and is working well. I have proved, and my opinion is confirmed by the most experienced breeders, that a bull in full vigour and health will serve six cows a week, and is quite as likely to get all of them with calf as if he only served one cow a week.

In-and-in breeding is considered detrimental to the working of bulls, and cases are cited of bulls closely bred which have proved slow and bad servers. Yet we must be cautious how we pronounce a strong condemnation against close breeding. We all know how nearly the late Mr. Bates' shorthorns were allied, the daughter being sometimes bulled by her sire, the dam by her own son, and so on. Yet Mr. Bates' blood, at several subsequent sales, realized enormous prices; and the best strains of his stock are still eagerly contended for.

The herd of Mr. Booth, of Warlaby, is a remarkable example of breeding from the same stock for a long period, the bull Exquisite (8048), from the Wiseton Sale in 1846, being the only animal introduced for a "cross" for many years. Yet this celebrated breeder not only exhibited the "best shorthorn cow," and the "best yearling heifer," at our late Chester Show of the Royal Agricultural Society, but his bulls are so eagerly sought after that he is unable to keep pace with the demand for them. The enormous sums of 100, 200, and even 250 guineas per annum are paid him for the hire of a bull; his calves are bespoken whilst they are yet sucking; and his income from the letting out of bulls alone (as none are sold) is equal to that of most of our country squires from their broad acres. His Imperial Majesty the Emperor of France, and his Royal Highness the Prince Consort, each patronise this remarkable herd for a bull; and some of his numerous stock have not been seen by Mr. Booth for ten years, having been moved from one herd to another without returning home.

As it is not my object to call attention to any particular herd of shorthorns further than to elucidate my subject, I refrain from pursuing this inquiry, which is, however, full of interest to the breeders of shorthorns.

As the temper of no animal is more uncertain than that of the bull, he should always be approached with caution, but without fear. The same man should attend to him as much as possible; and though the bull should usually lie loose, he should be tied up at certain times, and accustomed to be handled by the master or by strangers, as well as by his attendant. Where it is not convenient for bulls to run out with the cows, exercise must be given them in other ways. A strongly-fenced yard adjoining the bull's shed, into which he can be turned during the day, is very essential; besides which, the bull will be all the better if led out for an hour four or five days in the week. A bull constantly chained up, and not allowed exercise or liberty, is as likely to turn savage as a yard dog similarly treated. From the earliest ages our subject has caused anxiety and inquiry to all who were interested in the breeding of cattle; and Job, in his affliction, alludes to the peculiar prosperity of the wicked, inasmuch as "their bull gendereth, and faileth not: their cow calveth, and casteth not her calf." We may safely assume that "high feeding," to which so many of the mischances in breeding are attributed, was but little known or practised in the days of Job, so far as breeding animals were concerned; yet we find the man considered fortunate and prosperous beyond his fellows who possessed a bull which "gendereth and faileth not"; or a cow which "calveth, and casteth not her calf."

I have previously spoken of the value of a good cowman, and of the qualifications he should possess; but an intelligent, vigilant, and watchful *master* is indispensable in the management of a herd of shorthorns. He must have a quick eye, to detect the shortcomings of his men, or the failings in his stock; and he must frequently inspect *personally* the feeding of calves, milking of cows, management of bulls, the preparation and application of food; and note the effect of different kinds of food on the animals. It is seldom also that a master can go round his premises without seeing wastefulness to be checked, carelessness to be reproved, or temper to be subdued. Violence to bulls should be immediately repressed, as they do not soon forget an injury, and will retaliate when opportunity offers.

Few descriptions of stock require greater forethought and care than a breeding herd of shorthorns. As the writer of this article, I may add that I have devoted much time and thought to the study of these interesting animals, and I am firmly convinced that in this, as in every pursuit where excellence is desired, a man's time and energies must be largely devoted to his business.

In founding a herd of shorthorns, the young breeder should commence with a choice few, and spare no pains in procuring them. Nor must money be a consideration, as the first outlay will be the least, if the selection is good. The pedigrees of the cows must be of the first class, and free from alloy. The animals themselves must be as perfect in form, and good in quality, as can be bought; and they should be known as regular breeders, or from regular breeding tribes. The *best* shorthorns cannot be purchased, but they can be bred; and any one commencing with five or six superior cows, and using a bull as good as can be found—the blood and quality of which must also be unexceptionable—may, by retaining his heifers, in a few years be the possessor of a splendid herd. "The Breeder's Complete Register of Shorthorns, containing Forms of Entry for Registering the Pedigree and Produce of the Herd," by Mr. Torr, and published by Longman and Co., London, will be found fully to answer the purpose of a private herd book. Our national register, known as "Coates' Herd Book," in 12 vols. 8vo., is published by the proprietor, Mr. Strafford, of Euston-square, London, who receives entries from shorthorn breeders at certain times, of which he gives notice, for future publication.

In the foregoing observations I have confined my remarks to the feeding and management of breeding stock in an ordinary and economical manner, consistent with fair condition. The feeding and treatment of stock for exhibition at our best local and national shows is quite a different matter, and demands care and skill which few persons thoroughly possess, and an outlay and disregard of expense which alarms prudent men. When expense is not a consideration, other requisites are so essential and imperative, that although the competitors are numerous, the winners of prizes are generally a select few, verifying the words of an ancient motto, that—

"Many go out for wool, and come home shorn."

[We have permission to state that these papers are from the pen of Mr. FRANCIS TALLANT, whose position as manager of Mr. Marjoribanks' herd gives them a weight and practical authority of the highest order.—EDITOR F. M.]

THE AGRICULTURE OF AUSTRIA.

TRANSLATED FROM THE FRENCH OF THE "JOURNAL OF PRACTICAL AGRICULTURE."

Those who have carefully studied the agricultural history of Austria cannot fail to be struck with the wide difference existing between the present state of things and that which preceded the revolution of 1848. Before that period the breeding of Merinos, the manufacture of beet-root sugar, and the distilleries, were, of all the branches of rural industry, those which alone were privileged to attract the attention of the large proprietors.

It was in the year 1761, under the glorious reign of the Empress Maria Theresa, that the first Merinos were imported into Austria, upon the Imperial domains of Mannersdorf and Hollisch. Thanks to the landowners of Silesia, Moravia, Bohemia, and Hungary, and above all to the indefatigable zeal and energetic activity of the Barons de Bartenstein and Ehrenfels, of Count Wrbna, Prince Liehnowsky, the Counts Colloredo Mansfeldt, Hunyade, and Karoly, and of Messrs. Christian Andræ and Bernard Petri, the rearing of Merinos was conducted upon the largest scale, and has since become both the chief product of Austrian agriculture and the brightest jewel in its crown.

The high price of wool, and the depressed condition of other products of the soil, have exercised a decided influence on the progress of wool-husbandry and the rearing of Merinos in Austria; but with the progress of civilization, coupled with a consumption continually increasing, and assisted besides by the extension of the means of communication, that branch of rural production cannot fail to increase still more in importance, and the enlightened cultivators ought to think seriously of replacing with fine-woolled animals the common races which are still met with in their flocks. This improvement is so much the more of pressing importance that the subdivision of the land in the rest of Europe tends to banish the breeding of sheep into those countries in which large domains still exist, as Hungary, Silesia, Moravia, &c.

The number of sheep in Austria at the present time amounts in round numbers to thirty millions, which yield annually 33,600,000 kilos. of wool (84,000,000 lbs.), representing a value approximating to 157,000,000 florins (or £10,700,000 sterling), which forms the subject of a commercial operation the importance of which may still be increased to a very considerable extent.

Germany, as is well known, is the cradle of the manufacture of sugar from beet-root. It was a Prussian chemist, M. Margraaf, who first discovered, in 1747, the presence of crystallizable sugar in beet-root. He was followed by Achard, who established at Cunnern in Silesia the first beet-sugar manufactory; but it was not till the beginning of 1809 that the continental blockade (the Berlin and Milan decrees of Napoleon) gave an active stimulus to the new industry, which has required not less than thirty years to acclimatise itself in Austria.

The establishment of the first sugar manufactories in Austria date from the year 1830, which saw erected those of Prince Oettingen-Wollerstein at Klein-Kuchel, near Prague; of Baron de Stratendorf, at Bedeskau in Bohemia; of Prince Latour and Taxis at Dobrobit; of Count Czernin at Sudkal, near Malleshau in Bohemia; of Count Colloredo Mansfeldt at Stacy in Lower Austria, &c. In the ten years from 1830 to 1840, 113 factories were put in operation; but of this number the greater part of those of the least importance, namely those which were worked by a naked fire, and employed less than 1,500,000 kilos. of beet-root (1,674 tons), have been successively abandoned, and to such an extent that at the present time they do not reckon more than 108, which consume about 308,000,000 kilos. of beet-root (343,750 tons), and produce 14,000,000 kilos. (or 15,625 tons) of sugar, 9,240,000 kilos. of molasses (14,776½ tons), and 30,800,000 kilos. of residue (34,375 tons). The total amount of the duties received by the Treasury is about 1,310,000 frs. (or £52,400 sterling), being about 9 f. 35 c. per 100 kilogrammes of sugar.

The discovery of the ingenious process, by which we can revive the animal black (charcoal) and make it serve again in the manufacture, has enabled the manufacturers to employ a larger quantity, and thus to raise to 7 per cent. the return in sugar from the raw beet-root. This improvement has consequently increased the product of Austrian sugar to 19,500,000 kilos. (or 21,764 tons), which represents about one-third of the consumption of the empire.

The average return of the beet-root is 25,600 kilos. (or about 28½ tons) per hect., (or 11½ tons per acre). 13,000 hectares are devoted to this cultivation, and furnish the 508 millions of kilos. of roots annually delivered to the sugar factories. The price of the beet-roots probably approximates to 23 fr. per 1,000 kilos. (or about 19s. per ton) delivered at the factory. In certain cases they have even paid from 30 fr. 70 c. to 36 fr. 75 c. (or from 25s. to 30s. per ton). The average amount of the harvest will therefore be 7,205,000 fr. (or £288,000 sterling), without including the leaves, the produce of which per hectare is about 6,000 kilos., equal to 1,200 kilos. of hay.

In estimating the price of the sugar at 140 fr. the 100 kilos. (or 5½d. per lb.), that of molasses at 14 fr. (or 5s. 2d. per cwt.), and, lastly, the residue at 1 fr. 50 c. (or about 13s. per ton), we find that the 308 million kilos. of beet-root have produced

Sugar..................	19,650,000 f.
Molasses	1,281,000 f.
Residue................	493,432 f.
Total............	21,426,432 f.

(or £857,057 sterling), which return shows that the value of the raw beet-root is tripled by its employment in the manufacture of sugar.

The leaves of the beet-root and the residue represent together a quantity of 25,670,000 kilos. of hay, which furnishes food for 6,500 middle-sized oxen. Let us add lastly, to complete this account, that the manufacture of beet-sugar in Austria occupies nearly 20,000 workmen during four or five months of winter.

We may form some idea of the extension that the manufacture of beet-sugar is still destined to take in Austria, if we reflect that Hungary, Galicia, Croatia, and Sclavonia at present possess only twenty sugar works, whilst the natural fertility and depth of their soil, and the cheapness of land, place them in conditions particularly favourable to the cultivation of beet-root.

We now come to the third of the agricultural speculations, which have more particularly fixed the attention and attracted the capitals of the great Austrian proprietors, namely; the cultivation of the potato, and its distillation for the extraction of alcohol. This branch of industry has exercised over Austrian agriculture a considerable influence, from which even the rest of Europe has not wholly escaped. Since the year 1817 the history of Agriculture has not had to report any general scarcity; on the contrary, good seasons have succeeded each other almost without intermission, the year 1830 being the only year in which Eastern Europe has suffered under the influence of an alimentary crisis, occasioned, in part at least, by the political events, of which Warsaw was the theatre.

The depression in the price of grain was the necessary consequence of the state of things that we have pointed out; and in 1824 the market price fell to such a point that the harvest did not suffice to cover the expense of production, and the husbandman found it impossible to pay his taxes and rent. It may be supposed that, placed in such a position, the zeal of the great proprietors for agriculture would be sensibly cooled, and that the majority of them would seek, in manufacture, the means of making up the deficiency in their revenues. It is to these causes that we may correctly attribute the establishment of a great number of distilleries and breweries, and the creation of numerous factories of starch, size, sugar, and vinegar.

By its antiquity and its numerous affinities with agriculture, the distillery was necessarily the first to attract the attention of those who were anxious about the means of deriving advantage from the produce of the soil, so as to secure a revenue.

It is hence that we saw arise in central Europe innumerable distilleries, of which some were formed upon an extraordinary scale. The culture of the potato took an immense extension, and the products of its distillation, by developing amongst the populations around the fatal habit of intoxication, struck a heavy blow at their intellectual existence.

However this may be, this revolution in the economy of rural employments was followed by a sensible improvement in the incomes from land; and some went so far as to assert, in a general way, that distilleries would alone stamp a value upon the land, and enable the owners to draw a rich revenue from the soil.

Upon those domains on which the quantity of tubers did not suffice to employ in a continuous manner, the action of the distilling apparatus, they found themselves compelled to have recourse to the peasants, and engage them to make, in their culture, a large reserve for the potato. In face of the extraordinary reduction in the price of cereals, and an absolute want of openings for them, it was not difficult to convince them; and they lost no time in banishing from their rotations the beans and peas, in order to increase the extent allotted to the potato, and thus furnish to the distilleries the first substance they require. The manufacture of spirits then assumed fresh activity; but the distillers soon found out that the production must be regulated exactly by the requirements of the consumption, and that the benefits of the enterprise were intimately dependent on the rigorous observance of this principle.

In search of markets, they deliver at a low price brandy of inferior quality, sell on credit, and, in short, agree to all kinds of sales on account, according to which the value of their goods is to be reimbursed to them in potatoes, deliverable at the time of raising. At the same time other means of seduction were employed by brokers and agents; in a word, nothing was neglected to attain the end, namely, to make the large workings produce the greatest possible amount of revenue. As to the physical and moral consequences of the immoderate use of brandy, they may be easily guessed; Galicia presents an example of it which deserves to be studied; and they have been amply exposed in the works of authors, and by temperance societies, who have undertaken to struggle against the abuse of alcoholic beverages.

Allured by the temptation of the profits the husbandman, in spite of the extension given to the culture of the potato, did not take the trouble to calculate very exactly the quantity necessary for his own use. From the small number of tubers which were not sent to the distillery, they selected the best for their own consumption; so that when the time for planting came, they found in the cellars or pits only a mass of small tubers often insufficient to seed the surface to be planted, and which it was therefore necessary to cut into small pieces, at the risk of failure. It is not surprising after this, when the seed-tubers were chosen under such objectionable conditions, that many cultivators afterwards attributed the potato disease to a disorganization of the plant or a debility in its constitution.

In manufacturing on a large scale, they obtain from one hectolitre of potatoes L16·50 of brandy of 20 per cent., and L72.50 of residue (or 29 pints of brandy, and 127½ pints of residue). The net cost price of an eimer (102 pints) of alcohol, without reckoning interest on capital engaged in the business, is just 6 florins (12s.); and as the eimer is sold at 10 florins (20s.), there remains a profit of 4 florins (8s.) per eimer, or of 4 kreutzers per mass (L1.41, or 1½d. per 2½ pints). Now, a quintal (140lbs.) of potatoes producing 7 mass (about 16 pints) of alcohol, the tubers will be paid for at the rate of 42 kreutzers (about 16½d.), that is to say, at a price at which it is impossible to procure them. These figures explain the motives that have induced the distillers to throw themselves again upon grain, and also show how much the advantages of their operations depend on the employment of the residue.

With these residues they fatten oxen, whose food ration is calculated at the rate of ten pounds of residue for one pound of hay. According to this, 150 livres or 50 mass of residue, which are obtained from 100 livres of potatoes, are equivalent to 15 livres of hay. In fixing the price of hay at 1 florin 30 kreutzers per quintal, we find that the 50 mass of residue ought to be worth about 6 kreutzers, and it is, in fact, the price paid at the great distilleries.

But it is in fattening pigs that the most advantageous application of them is attained, and all the great distilleries fatten pigs of the Hungarian breed. This is, it may be said, one of the conditions of their success; for if they confined themselves to fattening oxen, and the price of alcohol were to be still further reduced, their existence might become a question. But the fatting of pigs appears to have in Austria a prospect so much the more certain, that it finds at Hamburg a considerable outlet in four large establishments for salting, which do not consume less than from 2,400 to 3,000 hogs per week.

The manufacture of alcohol, combined with the fatting of cattle, possesses for Austria an economic importance so much the greater, that the production of meat and skins is not equal to the requirements of the consumption, and the expense of the importations amounts annually to nearly 23 million francs (£920,000 sterling).

They reckon in the Austrian monarchy 16,000 distilleries, the annual produce of which rises to 2,900,000 hectolitres (63,828,037 gallons) of alcohol, and 21 million hectolitres of residue, which is equivalent to 242 million kilogrammes of hay. This quantity of hay is sufficient for fatting 60,000 head of neat cattle of average size, which yield at least 504 million kilogrammes of dung, with which they manure 17,000 hectares (or 42,500 acres).

We may judge by these estimates the important position the production of alcohol holds in Austria. It is a manufacture, the interests of which demand to be taken into very serious consideration; and it will suffice to reform or to reduce the duties which are levied on the alcohols at the delivery, to give it a fresh impulse, to call forth large establishments, and to annihilate the small distilleries, which produce at a dear rate, and exercise a fatal influence over the labouring classes.

In passing successively in review the breeding of Merinos, the manufacture of sugar, and the distillery, we have studied the three branches of rural industry which, up to the middle of the nineteenth century, have the most particularly fixed the attention of the Austrian cultivators, and laid the foundation of their prosperity. As to the rest, with the exception of the breeding of horses, they troubled themselves but little, and matters have proceeded without any other guide than chance.

In the meanwhile, a few amateurs apply themselves sedulously to the breeding of horned cattle, and import into their domains animals of the breeds of Berne, Schwytz, the Tyrol, Pinzgau, and Murzthal. But meat, milk, butter, and cheese are sold at prices so low that they afford no encouragement to the improvers and importers, whose choice, besides, often falls on races not at all suited to the country. Do they not also commit an error in repeating to nausea that cattle are a "necessary evil," and that cows yield no income, but that it is still necessary to resign themselves to keeping some of them in order to profit by their dung? But with such conditions horned-cattle-breeding can only recede to that point that it is necessary to pass in review hundreds of animals, in order to find a bull or cow approaching to faultless. They no longer trouble themselves about race and production. They purchase at hazard; they couple and cross without attending to the milking qualities, tendency to fattening, or aptitude to labour, and hold themselves well satisfied if they can but obtain animals of a large size.

The rearing of cattle is concentrated more and more in the steppes and mountainous regions in proportion as the value of land increases in the plains; and as the deficiency of good stallions becomes every day more apparent, it is to be feared that the breeding of horned cattle only constitutes a new stage in the bad course on which it has entered. The situation is not better in regard to the porcine race; and if, between ourselves, the breeding of horses has made, and still makes, undoubted progress, it must be attributed to the increase in the number of stallions, and to the care they have taken to select them in perfect analogy with the local races.

As to cultivation, properly speaking, they hold it to be ruinous; and under this idea, it is greatly neglected. At the same time, under the influence of continually increasing demands and the advance in price, the cultivation of hops and oleaginous seeds has received a very large extension, especially in Hungary.

The art of cultivating the meadows and improving the forests remains stationary, and has preserved its traditional stamp even to the middle of the nineteenth century; and neither the forest law promulgated in 1815 in Lower Austria, nor the institution of forest masters and agents by arrondissement and districts, have been able to emancipate the art of the forester from the condition in which it languished.

By concentrating itself in the hands of the wealthy proprietors, who have planted large vineyards, and have employed themselves in making choice of better vine-stocks, and introducing improvements in the manner of treating the wines in cellars, the culture of the vine has realized in lower Austria, a progress that we cannot pass by in silence.

But since the soil has been freed from the trammels which weighed upon it; since above all, the price of agricultural produce has sensibly risen, a new era of prosperity has opened to agriculture in Austria.

The abolition of the statute labour has given rise to the establishment of numerous factories of aratory implements at Vienna, Prague, Pesth, Limberg, Gratz, Audutz, and Hohenmausen. Thrashing by the flail has given place to the thrashing machine; the drill is substituted in part for the hand of man; the ancient wooden plough, with its long mouldboard, has been laid aside; the rake has been replaced by the haymaking machine; the scythe and the sickle have been transformed; the extirpator has taken place of the hand-hoe; the sub-soil plough has done the office of the spade and pickaxe. Drainage with its tiles of baked earth has facilitated the escape of the subterranean water. Lastly, steam has won its place in rural operations; and industry displays an energy and activity unexampled in the annals of Austrian agriculture.

Under the empire of the dearness of grain, meat, wool, and wood, manufactories of manure have been established at Lorber, Fichtner, Mally, and Holbleng, the frontiers have been opened to the importation of guano, and nitrate of soda, and the preparation of farm-yard manure has been subjected to great improvements. Drainage gains partisans. Societies are established for the fatting of cattle; the merinos shew symptoms of occupying the fold at the expense of the common breeds, and the porcine race is improved by well-judged crossings. Forester societies, and schools are established in almost all the provinces of the monarchy, and itinerant foresters convey to them instruction in the best methods. Lastly, engineers skilful in the art of cultivating the meadows, travel through the country, and lend their aid in the clearing of the lands and in the drainage of the marshes. In a word, the elevated rate of agricultural produce, or at least, the remunerative price that they obtain, offers a sufficient premium to the efforts of the husbandman, to engage them to launch themselves without hesitation in the course of progress. EUGENE MARIE.

THE ANNUAL YIELD OF NITROGEN PER ACRE IN DIFFERENT CROPS.

BY J. B. LAWES, F.R.S., F.C.S., AND J. H. GILBERT, PH.D., F.C.S.

[Read at the British Association for the Advancement of Science, Leeds. Section B., September 28th, 1858.]

ABSTRACT.

In a paper given last year at the Dublin meeting, on the question of the Assimilation of Free Nitrogen by Plants, and some allied points, the authors had stated in general terms, that the amount of nitrogen yielded per acre, per annum, in different crops—even when unmanured—was considerably beyond that annually coming down, in the forms of ammonia and nitric acid, in the yet measured and analyzed aqueous deposits from the atmosphere. The investigations then referred to were still in progress; and a desirable introduction to the record of the results would obviously be to illustrate by reference to direct experiment that which had been before only assumed regarding the yield of nitrogen in our different crops. To this end, had been determined the annual produce of nitrogen per acre, in the case of various crops, which were respectively grown for many years consecutively on the same land, namely, wheat fourteen years, barley six years, meadow hay three years, clover three years out of four, beans eleven years, and turnips eight years. In the majority of the instances referred to, the yield of nitrogen had been estimated, both for the crop grown without manure of any kind, and for that with purely mineral manure—that is, excluding any artificial supply of nitrogen. It was the object of the present communication to give a summary view of some of the facts thus brought to light.

Beans and clover were shown to yield several times as much nitrogen per acre as wheat or barley. Yet the growth of the leguminous crops, *carrying off* so much nitrogen as they did, was still one of the best preparations for the growth of wheat; whilst *fallow* (an important effect of which was the accumulation within the soil of the available nitrogen of two years into one), and *adding nitrogenous manures*, had, each, much the same effect in increasing the produce of the cereal crops.

Other experimental results were adduced, which illustrated the fact that four years of wheat, alternated with *fallow*, had given as much nitrogen in the eight years as eight crops of wheat grown consecutively. Again, four crops of wheat, grown in alternation with *beans*, had given nearly the same amount of nitrogen per acre as the four crops grown in alternation with fallow; consequently, also much about the same as the eight crops of wheat grown consecutively. In the case of the alternation with *beans* therefore, the whole of the nitrogen obtained in the beans themselves was over and above that which was obtained during the same series of years in wheat alone—whether it was grown consecutively or in alternation with fallow.

Interesting questions arose, therefore, as to the varying sources, or powers of accumulation, of nitrogen in the case of crops so characteristically differing from one another as those above referred to.

It had been found, that the leguminous crops which yielded in their produce such a comparatively large amount of nitrogen, over a given area of land, were not specially benefited by the direct application of the more purely nitrogenous manures. The cereal crops, on the other hand, whose acreage yield of nitrogen under equal circumstances was comparatively so small, were very much increased by the use of direct nitrogenous manures. But it was found that, over a series of years, only about 4-10ths. of the nitrogen annually supplied in manure for wheat or barley (in the form of ammonia-salt or nitrates) were recovered in the immediate increase of crop. Was any considerable proportion of the unrecovered amount drained away and lost? Was the supplied nitrogenous compound transformed in the soil, and nitrogen in some form evaporated? Did a portion remain in some fixed and unavailable state of combination in the soil? Was ammonia, or free nitrogen, given off during the growth of the plant? Or, how far was there an unfavourable distribution, and state of combination, within the soil, of the nitrogenous matters applied directly for the cereal crops—those, such as the leguminous crops, which assimilated so much more, gathering with greater facility, and from a different area of soil, and leaving a sufficient available nitrogenous residue within the range of collection of a succeeding cereal crop? These questions, among others which their solution more or less involved, required further elucidation before some of the most prominent of agricultural facts could be satisfactorily explained.

Comparing the amount of nitrogen yielded in the different crops, when grown without nitrogenous manures as above referred to, with the amount falling in the measured aqueous deposits, as ammonia and nitric-acid, it appeared, taking the average result of the analysis of three years' rain, that all the crops yielded considerably more, and some very much more, than so came down to the soil. The same was the case when several of the crops had been grown in an ordinary rotation with one another, but without manure, through two or three successive courses. Was this observed excess in the yield over the yet measured source at all materially due merely to exhaustion of previously accumulated nitrogenous compounds within the soil? Was it probably attributable chiefly to the absorption of ammonia or nitric-acid from the air, by the plant itself or by the soil? Was there any notable *formation* of ammonia or nitric acid, from the free nitrogen of the atmosphere? or, did plants generally, or some in particular, assimilate this free nitrogen?

As already intimated, some of the points which had been alluded to, were at the present time under investigation; the authors having, in this, the able assistance of Dr. Pugh. Others, it might be hoped, would receive elucidation in the course of time. There of course still remained the wider question of the orginal source, and of the distribution and circulation, of *combined nitrogen*, in the soil, in animal and vegetable life on the earth's surface, and in the atmosphere above it.

WEIGHTS AND MEASURES.

LECTURE ON THE METRICAL SYSTEM OF WEIGHTS AND MEASURES, AND THE DESIRABLENESS OF ITS BEING ADOPTED BY ALL CIVILIZED NATIONS AS THEIR COMMON STANDARD, READ IN THE COUNCIL ROOM OF THE CHAMBER OF COMMERCE, BELFAST, ON THE EVENING OF THURSDAY, THE 23RD SEPTEMBER, 1858,

BY THE REV. JOHN SCOTT PORTER.

At the request of the Council of the British branch of the "International Association for obtaining a Uniform Decimal System of Measures, Weights, and Coins," I have undertaken to deliver a lecture on the subject, which has been announced for discussion this evening. I may add, that I am indebted to that society for the use of the specimens and the diagram by which my remarks will be illustrated, and to its valuable publications, especially those by Professor Hennessey and Mr. Yates—copies of which I have placed on the table before me—for many of the facts which I am about to bring forward. As the subject is closely related to the business of trade and manufacture, I have thought the council-room of the Chamber of Commerce a suitable place for uttering what I have to say upon it; but, as it has also its moral and philosophic aspect, I conceive myself, as a minister of religion, engaged in no unsuitable or unbecoming occupation, when I venture to lay before those who do me the honour to attend to what falls from me, the conclusions which I have reached, and an outline of the process by which they have been attained. The subject is not exciting; it enkindles no party zeal or sectarian interest; but I trust to show, before the close of this address, that it is calculated to enlist the sympathies and engage the attention of all who wish to advance the welfare of their fellow-men. I would especially desire to turn to it the thoughts of young men engaged in commercial pursuits. Their active life is yet before them; and I conceive they ought to feel an enlightened desire to secure the adoption of such plans for the conduct of commerce as may render all its operations more definite and easy, and may thus promote not only their own convenience, but the happiness of their race. Without further preface, I proceed to the discussion of the subject announced—namely, the expediency of adopting an improved system of measures and weights, calculated to become the common standard for the exchange of commodities throughout the whole civilized world.

I begin with a retrospective glance at the early history of weights and measures. Their introduction is coeval with the dawn of civilization: society may exist without them, but not civilized society. The Laplanders, the Bushmen, the Esquimaux, the Red Indians, have neither weights nor measures; but the business of a city could not go on for a week without them. Hence we find mention of them at a very early period in the world's history. The dimensions of the ark were given to Noah in cubits; and Abraham weighed to Ephron, the Hittite, the silver which was the price of the field and cave of Macphelia, in shekels. The *ammah*, like the Latin word *cubitus* (a cubit), by which it is translated, signifies the fore-arm, from the elbow downwards to the point of the fingers—"the cubit of a man," as it is called in Deut. iii. 11. The *shekel*, like our own English pound (from *pondus*), denotes, etymologically, "a weight;" but among the Hebrews, the "shekel of the sanctuary" was defined to be of the weight of twenty gerahs (Exod. xxx., 13; Num. iii. 47; Ezek. xlv. 12), that is, of twenty beans—for so the word *gerah* literally signifies. Let us not despise these rude attempts to fix a common and natural standard of measures and weights. Our own system was originally formed on the very same principle. Silver among ourselves is sold by the ounce, consisting of 480 grains; and the grain was at first what its name implies—a pickle of dried corn, taken from the middle of the ear. More bulky commodities are often sold by the stone—a term which explains itself, and bespeaks the rudeness of primeval times. In measures of length we have the barley-corn, now never used, except in works of arithmetic, in which it is preserved for the sole purpose, as it would seem, of presenting an additional puzzle to the hapless children who are condemned to drudge at our dreary and unaccountable system of counting; we have the hand and foot, taken, of course, from the corresponding parts of the human form; we have the yard, anciently termed the ell (*ulma*), that is to say, the arm. The word ell is no longer used to signify the arm in common speech, but it is retained in the compound el-bow, which means the bow or bend of the arm. And the depths of the ocean are sounded in fathoms, that is to say, the expanse of the outstretched arms. These are very rough standards of comparison—they fluctuate in size and bulk—in fact, they are seldom exactly equivalent in any two individuals; their employment for the purposes of trade would open a door to continual fraud, and give rise to perpetual bickerings, which it is the very object of a system of weights and measures to prevent. Accordingly means were early taken to reduce them to some definitely ascertained magnitude, which should be general at least for each neighbourhood. At first the plans employed for this purpose were almost as rude as the errors which they were designed to correct. In France, for example, every province under the old monarchy had its own system of weights, and its own system of measures for lengths, surfaces, and capacities, quite independent of all the rest of the kingdom. Sometimes these standards, thus differing from each other, went by different names in the different provinces, which occasioned considerable inconvenience to traders; sometimes the standards used in different provinces, and differing from each other in magnitude, passed by the same name, which led to still greater perplexity. In two, at least, of the largest and most populous provinces of France, it was the custom—which had the force of law—that the standard of length in each seigneurie, or manor, should be the arm of the seigneur for the time being. In these districts, the death of a short seigneur, if succeeded by a son six feet in height, and with an arm proportioned to his height, would ruin half the traders, and make the fortunes of the remainder. All this has now been rectified; and there is no country in the world that at present enjoys the benefits of a system of weights and measures more philosophical in its conception, more elegant in the relation of its different members, or more convenient in its application to all the purposes of civilized man, than that now employed in the French empire.

In England, the necessity of a fixed and uniform standard was felt and acknowledged at a very early period. In the Anglo-Saxon times, so early as the reign of King Edgar, about a hundred years before the Norman Conquest, a law was made requiring that a set of weights and measures should be kept at Winchester, then the capital of the kingdom, by which those employed at other places should be regulated. The troublesome and distracted state of the nation in after-times probably occasioned this law to be neglected. At all events great irregularities existed, and were complained of in the time of King Henry I., the son of the Conqueror, at least as regarded the unit of length; to obviate them, he made a law that the length of his own right arm should be the standard yard for his dominions. This provision also failed to produce the needful uniformity. In Magna Charta, which was signed in the reign of Henry's great-grandson, King John, it was stipulated by the 41st section that there should be only one weight and one measure throughout the whole realm. In later times it was enacted by Parliament that a standard yard, a standard pound troy, and a standard gallon—all made of brass, under the direction of commissioners appointed for the purpose—should be kept in the costody of the Speaker of the House of Commons; that compared copies of them should be lodged in several important towns; and that all legal weights and measures should be conformed to them. The originals were lost by the fire which consumed the old House of Commons, in the autumn of 1834; but the certified copies, which had been made with as much care and accuracy as the standards themselves, still exist; and, so far as these three magnitudes are concerned, I have never heard a complaint of any want of uniformity throughout the United Kingdom. But there are, nevertheless, evils and imperfections in our existing systems of measures which, in my opinion, loudly call for a remedy, and to which it seems strange, and almost inconceivable, that the commercial community of Great Britain and Ireland should have submitted even for a single year. Some of these I shall now endeavour to point out.

In the first place, it is to be remarked that three important portions of our system are quite independent of each other—I allude to the measures of weight, length, and capacity. The pound has nothing to do with the yard, nor the yard to the imperial gallon. There are thus three distinct and separate standards; whereas, if a more rational method had been followed, one would have been sufficient, from which all the rest could easily have been derived. Secondly, all these standards are purely artificial and arbitrary; there is nothing in nature that corresponds to any one of them, or from which they can in any simple or elegant manner be derived. I defy any man to give to another, by intelligible words, an exact idea of the length of a yard or the weight of a pound, otherwise than by placing specimens of these quantities before him. Hence, if our present weights and measures were lost, they could not possibly be recovered; nor could future ages have any notion of quantities expressed in terms derived from our existing standards. Thirdly, the divisions of our scale, or rather of our manifold scales, are arbitrary, capricious, perplexing, and in most cases inconvenient, to a degree that foreigners, accustomed to a simple and elegant system, find it difficult to comprehend. This is the circumstance which makes the study of commercial arithmetic so difficult and disgusting. There are very few pupils who can learn arithmetic tolerably well in less than three years; in most cases it requires four to master it, even under an able teacher and with the best existing text-books; whereas, if a proper division of our money, weights, and measures were introduced, I affirm, without hesitation, that all the knowledge that is contained in Dr. Thomson's arithmetic could easily be acquired in a twelve-month, and when so acquired could never be forgotten. Let me illustrate this by a specimen of the sub-division of some of the larger units of the scale, showing the multipliers which are to be used in bringing them to a lower denomination, as it is called: of course, in bringing lower to higher denominations, the multipliers become divisors in inverted order.

In reducing money, that is to say, the denominations of money in which accounts are kept—for the coins are far more numerous, and their sub-divisions go upon a different principle altogether—the multipliers are successively 20, 12, and 4. In reducing a mile to its sub-divisions in this country, the multipliers are 8, 40, 7, 3, 12, and 3. In reducing a ton, the multipliers are 20, 4, 28, and 16; for another sort of ton, the multipliers are 20, 4, 30, and 16; for another sort of ton, 21, 4, 28. In reducing a yard, a carpenter uses as multipliers, 3, 12, and 8; but a draper, 4 and 4. A grocer, in bringing his pound to a lower denomination, uses as multipliers, 16 and 16; a goldsmith reduces his pound by 20 and 24; and an apothecary his by 8 and 30. Moreover, these pounds, and the ounces of which they consist, are of different weights; the goldsmith's pound is lighter than the grocer's, but his ounce is heavier; and not one person in ten thousand knows the exact proportion between them. In the measure of surfaces, the statute acre is successively reduced to its lower denominations, by the multipliers, 4, 40, 30¼; the perch by 30¼, 9, and 144. To take one out of many of the ways of calculating capacity, we may select the authorized division of the quarter of corn. It is to be reduced into its lower component parts by multiplying by 8, 4, 2, 4, 2, and 4. And as to the divisions of the bushel and the gallon, they are so various and so perplexing that I could not venture to set them forth without exposing myself to the chance, or rather to the certainty, of falling into some mistake; I might make myself ridiculous, and therefore I desist. There are men whose heads can hold all this, and more—perhaps five times as much more of the same kind—which the existing system requires to be borne in mind—and can hold it without mistake, confusion, or difficulty; I confess myself unable to do so. Do not suppose that I have written the foregoing figures down from memory: nothing of the sort; I have copied them from that excellent work, Dr. Thomson's arithmetic; there I feel a full assurance that all is quite correct; and if there be any mistake, put it down to my inadvertence or stupidity. I find it not easy to remember these things; but consider how difficult it is to work them out; and consider that accounts and calculations involving accuracy in all these details, and their comparison with one another, are required perhaps a hundred times a day in 10,000 counting-houses in the United Kingdom, and you will understand the impediment thrown in the way of trade and manufactures. There is not a house-painter or a plasterer in a score that can measure his own work, or can tell, without the help of a professional measurer, how much an employer, who has contracted with him at so much by the square yard, is in his debt: in France, any child who can perform simple multiplication can do it with ease. With us, it is still more difficult for a stone-mason, who is paid by what is called a solid perch (which, however, is not a solid perch at all), to tell the amount of his own earnings: but if we had the French system, the calculation would be as easy as the former. I had thoughts of working some of these calculations to which I have referred with chalk, upon a black board, that you might judge of the tediousness, complexity, and difficulty of the process; but I refrain, because I fear the process would prove tedious beyond the power of your patience to endure; and I am almost sure some of them would prove perplexing and difficult beyond the power of my skill to perform.

Fourthly, while the units of length, weight, and capacity are fixed by law, so many local customs prevail as to the multipliers and sub-multipliers of the scale, that it is very difficult from a price current list to ascertain the comparative value of the same commodities at various places in our own nation. Suppose, for example, that a farmer has got a quantity of wheat on hand which he is anxious to dispose of to the best advantage, and he looks over the prices current in all the newspapers he can find in the Commercial News-room. In one town it is quoted at so much per cwt.; in another, at per barrel; in another, at per quarter; in another, at per load; in another, at per bag; in another, at per weight; in another at per boll; in another, at per coomb; in another, at per hobbet; in another, at per winch; in another, at per windle; in another, at per strike; in another, at per measure; in another, at per stone! Thus there are fourteen different denominations to be compared with each other before the farmer can discover what is the average value of his wheat, or what is the most desirable market for the sale or the purchase of it. But all this, though puzzling enough, would be plain sailing, comparatively, if the same name signified the same weight and quantity in all places, or even at the same place; but it does not. It would be strange indeed if it did, in a system where everything appears to be done that can be done to bewilder and mislead. I have here a table published by the International Association, showing the different weights and measures in use in different localities in the United Kingdom, and from it I read, confining myself, as before, to the manner of selling wheat. At Hertford, it is sold by the load, which is equal to 5 bushels; at Hitchin, by the load of "about 5 bushels;" at Bedford, by the load of 3 bushels; at Dorking, by the load of 5 quarters; at Bishop's Stortford, by the load of 40 bushels! Thus there are five distinct nominal values given for the one denomination—the load— expressed as so many quarters or so many bushels. What, then, is the amount of a quarter? Why, in general, it is equal to 8 bushels by measure; but in London it is a weight of 480lbs. In like manner the bushel is in many places not a measure, but a weight; and in different places it signifies different weights. The following is the value in various towns and places in England: 168lbs., 73½lbs., 62lbs., 80lbs., 75lbs., 72lbs., 60lbs., 70lbs., 65lbs., 63lbs., 64lbs., 5 quarters, 144 quarts, and 488lbs.! In the highly enlightened and commercial town of Manchester, a bushel of English wheat is 60lbs., but a bushel of American wheat is 70lbs.! Here we have the bushel fluctuating from 5 quarters to the eighth part of a quarter, being a variation of 4,000 per cent. on the smaller quantity; and the quarter itself is an unsettled quantity; where its value is given in pounds weight, it varies from 60lbs to 488lbs. So a bag is, at Bridgenorth, 11 scores, whatever may be meant by a score (I suppose it means 20lbs.); in an adjoining town, the bag is 11 scores and 41lbs.; in another place it is 12 scores; in another 12 score 10lbs.; in another, 2 bushels; but which of the many bushels is intended, the return saith not. In like manner, a weight is 14 stone, 36 stone, 40 stone. It is useless to follow this line of illustration farther. I may, however, remark that similar variations exist in the system of linen measure, of land measure, of the weights and measures of oats, of barley, of butter, of potatoes, of coals, of wool, and of flax, and, in fact, of almost every article that is in common use among us. Even in the same town, the same name does not express the same quantity. In Belfast, a stone of oats is 14lbs.; a stone of flax is 16¾lbs. A stone elsewhere means 8lbs., 14lbs., 16lbs., 18lbs., or 24lbs., according to circumstances. If I mistake not, flax is sold in Downpatrick by the stone of 24lbs. Can any man tell me, without hesitation or circumlocution, what is meant by an acre? I fancy there are few who know the answer to that simple question. It means seven different quantities of land, varying from the Cornish acre of 4,840 square yards to the Cheshire acre of 10,240, which is nearly half as large again as our Irish plantation acre of 7,840 square yards. In short, if a committee of the most skilful philosophers had set themselves to the task of devising a system of weights and measures that should most effectually hinder or render as difficult as possible the transaction of the common business of commercial and agricultural life, they could scarcely have hit upon any that would have answered the purpose more effectually than that which exists, and is clung to with persevering tenacity in this agricultural, manufacturing, and commercial nation! I believe it is by far the worst that is to be found in the whole world. And this leads me to the fifth and last objection that I shall urge against our present system: it is not and never can by possibility become international; that is to say, no other country ever has adopted it, or ever will adopt it, unless its inhabitants be a race of idiots, with whom it will be difficult to carry on trade. By adhering to our present system, or want of system —for there is really nothing systematic in it—we are isolating ourselves from the general community of trading nations, and rendering as inconvenient and difficult as possible that commercial intercourse which is one of the main sources of the greatness of the British empire.

I apprehend that no human being, at least no rational man, will maintain that the irregularities, inconsistencies, and absurdities, a part—but only a part—of which I have detailed, should remain as they are. Common sense cries out against it. They must be put down, and will be. Even the stupid and abortive attempts at a remedy which were before Parliament last session, show that a remedy is demanded by the public voice. But how is it to be applied. Two courses are open to us. We may adopt what is regarded as the most generally accepted part of the existing weights and measures, abolishing by law what are considered mere local deviations or casual irregularities. Or we may discard all concern about the existing system, and adopt by law the best system that can be found or invented.

In my opinion the latter is the advisable course. Do what we will with the present system, it never can be made a good one. Its origin is purely casual; its divisions are irremediably inconvenient; its separate parts have no mutual relation; and, tinker it as we may, it never will be adopted by any other people. The doing away with their local customs and special anomalies will be as obstinately resisted by the stupid and the ignorant as the abolition of the whole system. You may all remember the outcry that was made a few years ago by persons engaged in the corn trade in this town, when our magistrates decided that a hundred-weight of grain meant a hundred-weight, and not a hundred-weight and four pounds. Had the latter practice been agreeable to law, you may rely upon it the men who raised the outcry would have resisted any alteration of the law with tooth and nail. But the law was against them, so they had to submit; and now they find, I believe, that they are not poorer by one farthing in consequence of the change. And so, everywhere, the change of local customs will give rise to an outcry from the ignorant and prejudiced. If you make any change, you are sure to have an outcry; then, if you are to have an outcry, have it for something that will be worth the struggle—for something that is really good—and that will arouse the zeal, and call forth the energetic co-operation of the benevolent and well-informed. Therefore, in putting down bad local customs, put down at the same time a bad national system; and in making any change, make it so that you shall not be called on to begin your work over again as soon as it is finished. I may remark, however, that the difficulty would not probably be so great as might be expected. In Ireland the currency was changed without difficulty, and in like manner the measures of capacity; and so, I conceive, would any important change, the advantage of which would soon make itself felt.

Throwing aside, as incapable of being made good (though undoubtedly it might be rendered less bad), our present confused and inconvenient system, let us consider what are the essential qualities of a good and philosophical system to be introduced in its room. And it strikes me that the following particulars embrace all that can be desired:—

1. It should have its basis in nature, and that basis should be of such a kind as not to be limited to one nation or tribe of the human family, but common to all mankind. 9. From the basis the other portions should be deduced by a simple and intelligible process, so that all should have a mutual relation, connection, and dependence; and these portions should embrace measures of length, of superficial area, of solid capacity, and of weight. 3. In each of these departments the multiplies and sub-multiplies of the primary unit should proceed decimally; that is, the larger divisions should increase upwards by tens, and the smaller decrease downwards by tenths. This would put an end to all such rules as compound addition, compound subtraction, multiplication, reduction, and fractions. Every arithmetical calculation would be performad by the rules applicable to whole numbers; and, in fact, one-half of the processes which now involve long and troublesome computations would be solved by inspection merely, without the use of pencil or pen. And 4—which, indeed, is implied in the three preceding conditions, it should, if possible, be such that we may expect, sooner or later, the adoption of the same system by all civilized nations.

Now, a moment's consideration will satisfy us that the first thing to be determined is the unit of length, for from it the measures of surfaces, of capacity, and of weight, can easily be deduced. And according to the first of the conditions above stated, we must look for a unit that has its basis in nature, and is not peculiar to one locality or to one tribe of mankind. Various standards of this sort have been suggested. In the year 1679, Locke suggested the third part of a pendulum vibrating seconds, as the unit of linear measure: but pendulums require to be made of different lengths to vibrate seconds at different points on the earth's surface; and it is a matter of great difficulty to determine the exact length of the second's pendulum either at the equator or any particular latitude. Although this proposal has been before the world for nearly two hundred years, no one pendulum has ever yet been mentioned as beating time with such accuracy that it would be right to adopt it as a standard of length. A similar objection applies to another suggestion, which is, that we should employ, as the origin of our linear system, the space through which a heavy body falls *in vacuo*, in a second of time. It is evident that this suggestion involves all the difficulties connected with the pendulum, and some others besides. It is difficult to procure a perfect vacuum; it is not easy to determine the space described by the falling body, by observation merely; the space is known approximately by calculations founded on the length of the pendulum itself; and here, still more than in the case of the pendulum, the varying force of gravity at different latitudes would give units of varying length at different points. The only proposal that remains for discussion, and which it is needful to consider, is that for taking as the unit of linear measure some definite portion of the dimensions of the earth itself. It is confessedly difficult to make any exact measurement of the earth itself, or of any required portion of its surface, but the thing can be done with a very close approximation to correctness; and when this has been accomplished with as great accuracy as can be attained, the sub-division of any one of the great magnitudes thus reached will give a unit of length as accurate as can reasonably be desired. I am sure I speak in the presence of many who are well aware that there is no such thing as a perfectly exact measurement of any one object in the universe. All that we can do is to reduce the amount of error within the narrowest possible limits, and this is most easily effected by the sub-division of the dimensions of a very large body, which has itself been measured with the utmost possible correctness. Now, the earth itself is the largest body that we can touch; the magnitudes and distances of the heavenly bodies, though in many cases much larger than the earth, are determined primarily from the dimensions of our planet. Accordingly it has been proposed to deduce our standard of length either from the dimensions of the earth's polar diameter, or from the extent of its surface, measured or computed from pole to pole, in a direct line. The latter is assuredly preferable, because from it the diameter of the earth is calculated, and in such cases it is better to employ the original than the derivative magnitude. The French Government deserves the credit of having first put this suggestion into practice. An arc of the meridian extending from Dunkirk, in France, to the sea-shore, near Catalonia, in Spain, was measured with the utmost care by Messieurs Méchain and Delambre; and from this, combined with the measurements of Maupertius and Condamine, previously extended with a view to determine the shape of the earth (its sphericity, as it is called), was deduced the length of an arc extending from the north pole to the equator. The 1-10,000,000th part of this arc was denonominated the métre; a bar of platinum was constructed representing this length as accurately as possible; and this bar—or others directly or indirectly copied from it—is the standard unit of length throughout France, and in many other countries which have herein followed her example. It is equal to 39 7-50 inches of our English measure, and is about ¼ of an inch longer than a pendulum vibrating seconds at the level of the sea in London. The métre is divided decimally downwards into decimetres, centimetres, and millimetres; and multiplied decimally upwards into decametres, hectometres, kilometres, and myriametres; the latter being, as is implied by its name, equal to 10,000 metres of the scale. The specimens before you show the manner in which the metre and its sub-divisions can be adapted to the purposes of drapers, carpenters, architects, and so forth. A portion of a metrical surveyor's chain is shown in the diagram. I can never survey these specimens without being struck by the peculiar beauty, if I may so term it, of the decimal division.

A square formed upon a line of ten metres in length, is the unit of superficial or land measure; and a cubit which has a decimetre (or 1-10th of a metre) for its measuring line, is called a litre—the unit of capacity. Each of these is increased or diminished by multiples or sub-multiples of ten; but, for the convenience of those who prefer halves and quarters to tenths, each may be, and often is, divided in this manner, though all arithmetical calculations are performed decimally. For the unit of weight a kilogramme is used, which is the weight of a litre of distilled water at its greatest density, which is a little above the freezing point. A kilogramme is rather more than two pounds English of avoirdupois weight. I need not specify the names of all the divisions and sub-divisions, because I look upon the nomenclature as a mere adjunct of the system, and a very unhappy one. I am sure the introduction of these outlandish names must have thrown many impediments in the way of the reception of the metrical system in the rural districts, and even in the towns of France; and when this system of weights and measures is introduced into this country, as I trust it will be ere many years, I agree with Professor Henessey, of the Catholic University of Ireland, whose pamphlet on this subject is one of the best that I have seen, that care should be taken to discard these jaw-breaking terms derived from Greek and Latin.

The metrical system has been, since 1840, the sole standard employed in France. It is also established in Belgium, in Holland, in Sardinia, in Lombardy, in Greece, and in Spain; in Portugal it is to come into operation in 1862, and it is partially sanctioned by law in Switzerland, Baden, and Hesse-Darmstadt. In South America, it has advanced with rapid strides. Chili, Columbia, New Greuada, Ecuador, and Brazil, have already adopted it by law. Including the colonies of France and Spain, it is now sanctioned in almost every Christian state or nation (except the United States of America) with which Great Britain has any considerable foreign trade; and if Great Britain were for once to pursue her own interest and the interest of mankind conjoined, there can be no doubt that the nations which still hesitate would speedily follow her example; so that this elegant and harmonious system would form a new link in the great chain which holds together all the tribes of civilized men on the face of the earth, facilitating their intercourse, and knitting them together by means of their mutual wants and reciprocal benefits.

NORTHAMPTONSHIRE AGRICULTURAL SOCIETY.

The annual meeting of this society took place at Towcester, on Thursday, Sept. 28. Both in respect of numbers and quality the show was probably as a whole one of the finest ever got together in the provinces.

LIST OF PRIZES.

FAT STOCK.

Open to all England.—To the owner of the best ox of any breed, exceeding three years old on 1st December next. First prize £10, Earl Spencer, of Althorp; second prize £5, John Beasley, Esq., Overstone.

To the owner of the best fat steer of any breed, not exceeding three years old on 1st December next. Prize £7, Mr. Samuel Wallis, of Barton Seagrave.

BREEDING AND STORE STOCK.

To the exhibitor of the best bull, above two years old. First prize £7, Mr. W. A. Elston, of Bugbrook; second prize £3, Mr. W. H. Harrison, Clipston House.

To the owner of the best bull, under two years of age. Prize £5, Hon. Col. Pennant, Wicken Park.

To the owner of the best cow of any breed, in-milk or in-calf. First prize £5, W. De Capell Broke, Esq, Geddington Grange; second prize £3, Mr. Elias Clarke, Liliingstone Dayrell.

To the owner of the best heifer of any breed, in-milk or in-calf, above three and under four years old. Prize £5, Mr. Joseph Robinson, of Clifton.

To the owner of the best heifer of any breed, above two and under three years old. Prize £5, Earl Spencer.

To the owner of the best heifer of any breed, above one and under two years old. First prize £3, Mr. Jos. Robinson, of Clifton; second prize £2, Mr. Jos. Robinson.

By P. Pain, Esq.—To the cottager, within the county, occupying not more than 10 acres of land, who shall produce the best cow or heifer, age and quality to be taken into consideration, which has been his property from the 1st of January, 1858, and grazed on land in his occupation. First prize £2, John Essam, of Broughton; second prize £1, George Stephens, of Wold.

From the Towcester Fund.—To the exhibitor, being owner, of the best pair of Welsh runts, to have been in his possession not more than 16 months. A piece of serviceable plate, value £5, Mr. John Shaw, of Hunsbury Hill.

SHEEP.

For the best pen of six long-woolled ewes, that have suckled lambs to the 1st of June, 1858, and bred by and the property of the exhibitor. First prize £5, Mr. Lovell Cowley, Ashby St. Ledgers; second prize £2 10s., Mr. Adam C. Keep, Wollaston.

For the best pen of six long-woolled theaves, bred and fed by and the property of the exhibitor. First prize £5, W. de C. Brooke, Esq.; second prize £2 10s., Mr. John Shaw.

For the best pen of five long-woolled shearhogs, bred and fed by and the property of the exhibitor. First prize £5; and second prize £2 10s., Mr. John Shaw.

For the best pen of six cross-bred theaves, bred and fed by and the property of the exhibitor. Prize £5, Mr. A. C. Keep, of Wollaston.

For the best pen of five cross-bred shearhogs, bred and fed by and the property of the exhibitor. First prize £5, Mr. John Woolston, of Wellingborough; second prize £2 10s., Mr. J. B. Twitchell, of Wilby.

To the exhibitor of the best shearling long-woolled tup, the property of or hired by the exhibitor for his own use. Prize £7, Mr. Richard Redgrave, of Boughton.

To the exhibitor of the best long-woolled tup, of any age, that has proved himself a stock-getter, the property of or hired by the exhibitor for his own use. Prize £7, Mr. John Shaw.

HORSES.

To the exhibitor of the best stallion for agricultural purposes, the property of or hired by the exhibitor, but the horse to have travelled and served mares in the county, during the past season. Prize £10, Mr. J. Manning, Orlingbury.

To the owner of the best mare and foal for agricultural purposes. Prize £5, Lord St. John.

To the owner of the best cart gelding, under three years old. Prize £5, Mr. John Atkins, Bugbrook.

To the owner of the best cart filly, under three years old. Prize £5, Lord St. John.

To the owner of the best horse or mare, under five years old, adapted for riding purposes. Prize £5, Mr. George Battams, Carlton.

To the owner of the best colt or filly, under three years old, adapted for riding purposes. Prize £5, Mr. William Shaw, Far Coton.

To the owner of the best mare and foal, adapted for riding purposes. Prize £5, Mr. O. Wallis, Overstone.

PIGS.

To the exhibitor of the best boar of any breed, the property of the exhibitor, which is intended to be used in the county. Prize £3, Rev. F. Thursby, Abington.

To the exhibitor of the best breeding or suckling sow of any breed, the property of the exhibitor. Prize £3, Rev. F. Thursby.

To the exhibitor of the best boar of a small breed, the property of the exhibitor. Prize £3, Mr. James Marriott, of Floore.

By Lord Henley.—For the best sow of a small breed, the property of the exhibitor. Prize £3, Rev. F. Thursby.

From the Towcester Fund.—To the exhibitor, being owner and breeder, of the best pen of three fat pigs. A piece of serviceable plate, value £5, Mr. James Marriott, Floore.

AYR CIRCUIT COURT OF JUSTICIARY.

WEDNESDAY, Sept. 22nd.

FALSEHOOD, FRAUD, AND WILFUL IMPOSITION AT THE AYRSHIRE CATTLE SHOW.

James Paton, farmer, Bankhead, near Partick, Glasgow, was charged with falsehood, fraud, and wilful imposition, in so far as on the 27th April last the General Agricultural Association for Ayrshire held a meeting and exhibition of agricultural stock, and the following premiums were offered for competition among the exhibitors, namely: a premium for the best bull of Ayrshire breed, not under three years old, of eight sovereigns; also a premium for the best two-year-old bull of Ayrshire breed, of five sovereigns; as also a premium for the second-best two-year-old bull of Ayrshire breed, of two sovereigns. The prisoner having punctured and inflated with air, on one or more places, the skins of three or of one or more bulls, and having also affixed to the head of one of the bulls false or artificial horns, the horns being so fixed as to represent and be taken for natural horns, or at least the prisoner well knowing that the bulls had their skin punctured and inflated, and that one of them had false horns for the purpose aforesaid, did wickedly and feloniously, falsely, fraudulently, and wilfully exhibit and produce to the society and judges one of the bulls in competition for one or other of the premiums offered for three-year-old bulls, and one or more of the bulls for the premiums offered for two-year-old bulls, with the fraudulent intention of imposing on the association and judges, by all which or part there of the association and judges were deceived and imposed upon.

Mr. Gifford took a preliminary objection to the libel, on the ground that the crime of falsehood, fraud, and wilful imposition was an offence against property, and was dealt with as such in every case.

The Advocate-Depute replied to the objection.

Lord Ardmillan said, although the libel was not very happily framed, he could not hold it irrelevant. Lord Neaves concurred. Objection dismissed.

The panel being called upon, pleaded not guilty.

Mr. Gifford thought it right that no juryman who was a member of the Ayrshire Agricultural Association should act on the jury in this case.

The Court considered this a very proper suggestion.

Mr. M'Murtrie, writer, Ayr, sworn and examined: Was secretary to the General Agricultural Association for Ayrshire. The association held an exhibition in Ayr, on Tuesday the 27th of April last. The association previously resolved to give certain premiums, and advertised them. Read seventh regulation, stating that no premium would be given should it be ascertained that any deception was attempted to be practised upon the judges. At a meeting of the committee of the association, the judges were named. Those for Ayrshire cattle were Mr. Buchanan, Garscadden Mains; Mr. Murdoch, Carntyne; and Mr. Wilson, Forehouse. The prisoner exhibited two two-year-old bulls. He also exhibited an aged bull for competition; but it was thrown out, as it was discovered to have been punctured and blown. The first and third prizes for two-year-olds were awarded to the prisoner. Two or three days after the exhibition, I received a letter from Mr. M'Culloch. I made the contents known to the directors, and in consequence of the information contained in it, I delayed paying the premiums.

Alexander Buchanan, farmer, Garscadden Mains, examined: Acted as judge at the show held in Ayr, in April last. The prisoner was there that day, and exhibited three bulls—one aged and two two-year-old. The aged bull was rejected in consequence of its being blown on both sides of the tail down the hips. The first and third prizes were awarded to Mr. Paton's two-year-olds. Can't say that I remarked anything very peculiar about these bulls. Had I been aware that the skin of the animal was inflated, or that it was furnished with artificial horns, I would, acting on my own views, not have awarded a prize, as I disapprove of such things. After the awards had been made, the prisoner came to me and asked why we turned out his aged bull? I told him the cause. I don't remember that he said anything to that.

Cross-examined—If he had not been blown I would have placed him second. I saw the bull afterwards at the Glasgow Show. I was a judge there also, and we awarded a prize to him. It is common to use all legitimate means to improve the appearance of animals for competition. It is usual to comb the hair and cut the tails of horses. I don't approve of that. I also judged Mr. Paton's bull at East Kilbride; it got a prize there, Mr. Dunlop's did not.

Mr. Murdoch, Carntyne, also one of the judges of Ayrshire stock at the Ayrshire Show, corroborated previous witness. Saw nothing wrong with the two-year-old bulls at first; but afterwards, on looking over them again, I saw a part of first prize bull raised; I looked for a wound, but could see none; saw nothing wrong with the horns at the time. It was in consequence of their general appearance, when we saw them first, that we awarded the premiums to the two bulls; had I known that one of the bulls had false horns I would have reported it to the committee.

Cross-examined—I can't say that the swelling improved the appearance of the bull. I saw him at Paisley; he was not swelled there; I thought he looked as well as he did at Ayr; he got the first prize at Paisley. I did not see the swelling on the two-year-old bull till after the prizes were awarded; I did not think it necessary to report it to the committee, the other judges having left. I saw nothing wrong with the other two-year-old bull. I saw the two-year-old bulls about two months after—one at Mr. M'Culloch's, and the other at Colonel M'Douall's of Logan. There was no difference on the 3rd prize one, but there was a difference on the horns of the other; it had horns of its own; they were middling good. Supposing I had seen it at Ayr in the same condition as at Colonel M'Douall's I can't say that I would have given it the first prize. The horns operated a little on my mind, it made the animal look showier. I was a judge at the Stranraer show; this bull got the first prize.

David M'Culloch, factor at Auchness, sworn—Was at the show at Ayr in April last. I bought two bulls belonging to Mr. Paton, one for myself and one for Colonel M'Douall; I wanted to buy them before the awards were made, but Mr. Paton wouldn't sell them then. I paid £30 for the first-prize bull, and £20 for the third. They were both ticketed as prize animals. Before paying the money I asked if the bulls were all sound; he said they were; this was about 11 o'clock. My reason for putting this question was, that Mr. Paton seemed anxious for me to take early delivery of them from his hands. I afterwards met Mr. Paton, when he took me aside and said the first prize bull had a pair of false horns on. I asked him what the natural horns were like; he said they were very good. I asked his reasons for putting on the false horns; he said the animal was in the habit of rubbing his horns against the walls and hedges, and had worn the points off them. I didn't give them up, as it was then late, and I was afraid I would then get no others to purchase. Paton came to Auchness on the 10th of May, and gave me a deduction of £10 on the first prize, and £5 on the third. The first prize bull was taken to Logan—it was this one had the artificial horns; they were very firmly on. I discovered also that this animal was inflated behind the shoulder; I observed where the puncture had been made; the hair was off, and it showed a white spot. The object in blowing is to make the animal look more symmetrical. My own bull was inflated in the hind-quarters in a similar manner to the others. I had a conversation with Paton about the inflation of both bulls. It was after this that he gave the deduction in the price.

Cross-examined—Mr. Paton told me about the false horns the same day. I did not give up the purchase. I considered myself entitled to give them up, but did not, partly because Paton assured me the bull's own horns were about as good as the others. When I did see the other horns they seemed very fair, and I was reasonably satisfied with them. I wrote to Colonel M'Douall on the subject, and he agreed to keep the bull. Paton offered to take them back. The bull has the habit of rubbing his horns on anything that comes in his way, and they get rubbed down. I never was aware that any covers were got for them by Colonel M'Douall's manager. The scar where the punctures had been made was healed up. There was nothing but a little white spot. Colonel M'Douall exhibited his bull with his natural horns at the Rhins Cattle Show, which I think was held in July—it obtained the first prize. The show at Stranraer was not so good as at Ayr: a number of bulls did not come forward when they knew this one was to be exhibited, as they were apprehensive he would win.

By the Court—When Paton came to me I think he knew I had written to the secretary at Ayr. It was generally known in Stranraer next day about the artificial horns. It was not known the bull would be exhibited with his natural horns at the Stranraer show; and it was in this state that others were afraid to meet him.

Thomas Jamieson, sworn—Was overseer to Col. M'Douall, at Logan Mains. Was at Ayr show, and two bulls were put into my hands by Mr. M'Culloch. After they were taken home, I saw that the first prize bull had artificial horns. I took them off with a hammer and chisel. There were nicks made in the natural horns to make the gutta-percha stick. I saw two small wounds on each side of the animal's shoulder.

Cross-examined—The natural horns are fairish, but they are not very like each other. The animal has a habit of rubbing his horns against everything he comes in contact with. One of them in particular was much worn down. Before the Stranraer show I got a leather cover made to protect its horns, but the leather was rubbed through in two days, and I had to get it repaired. The bull is a very fine animal; and I heard that some intending competitors did not come forward at Stranraer from fear of it.

Alexander Wilson, Forehouse, one of the judges of Ayrshire stock at Ayr show, examined by Mr. Gifford—Gave testimony similar to the other judges relative to the aged bull. If there had been any considerable inflation in the two-year-old bulls I think we would have discovered it.

This finished the evidence.

The Advocate-Depute, in addressing the jury for the prosecution, said this was a very serious charge, and it was made all the more serious by the line of defence taken by his learned friend. He attempted to show that such frauds were very frequent; and if this were so, it was time that the arm of the law was brought to bear to put a stop to such practices. Another remark he would make was, that a deception such as this was very difficult to detect. At these large shows a great number of animals were exhibited, and a very short time could be spent by the judges on the examination of each. It was, therefore, comparatively easy to impose upon the judges. If the artificial horns had been put on for no other purpose than to protect the natural horns, it would have been very easy for Paton to explain this to the judges; but he never did so—he allowed it to appear that they were the natural horns. What the judges might have done had the bulls been in their natural state, it was impossible—it would be idle to say. They just judged the bulls as they were before them; and they were not then in their natural state. He claimed a verdict of guilty.

Mr. Gifford then addressed the jury for the prisoner. He regretted that this trifling inquiry had been taken up. It surely might have been disposed of in a more summary way. He did not think the judges of the cattle would thank his learned friend for stating that they had not time to make a proper and minute inspection. Well, the judges, it appeared, had discovered that there was something wrong with the aged bull, and he was consequently thrown out altogether. They must, therefore, dismiss that animal from their consideration. Now, it was natural to think that when the judges had their attention called to the appearance of the aged bull, they would be most careful and minute in their subsequent inspection, and would have discovered anything that was wrong with any other animal; but they saw nothing. One of the judges had told them that this "blowing" spoken of was very easily detected. He (Mr. G.) would have liked much to have seen this puncturation more clearly specified. They were merely told about a "swelling"; but he supposed swelling was as natural to animals as to human beings. But supposing it to have been proved—which he held it was not—that this swelling was produced by puncturation, what was there to connect Mr. Paton with the operation? There was not a tittle of evidence on this point. The breaking of one link of a chain of evidence was sufficient to break down a whole case; but here there was not a single link in the chain that could stand. Not one of the judges said the prize was given for the horns. One of the judges said he did not know whether it was because of the horns or not that the prize was given; and this was enough, because the prosecutor was bound to show that if it had not been for the horns the prize would have been given to another animal. The second judge said he would have voted for the same prize with the real horns as with the false ones; and the third judge gave the same general answer. But more than all this, the prosecutor would have them believe, and it was necessary to the supporting of his charge to prove, that these bulls were in reality paltry animals, which would have had no chance of a prize without this blowing and this furnishing with artificial horns; but the fact of the matter was that the first prize bull, in its natural condition, was such a formidable animal that at the Stranraer Show very few would come forward to meet him. But taking the horns as they were found, what evidence had they here again to connect Mr. Paton with the putting of them on? It had been proved that the animal had a bad practice of rubbing his horns against walls and hedges, and was it not the most likely thing that some of Mr. Paton's servants put on the horns as a shield, just in the same way as Col. M'Douall's overseer had put on leather covers, which, however, did not stand for two days? In conclusion, he confidently claimed a verdict of acquittal at their hands.

Lord Neaves, in beginning his charge to the jury, commented severely on the operations which it had been stated were commonly practised upon animals before bringing them forward for competition. It was conduct which no honourable or honest man would be guilty of. But it was not everything that was dishonest or deceitful in the world that they could sit to decide upon. If they did so, they might sit a long time, and yet not get through with them. There were certain classes of crimes, however, which fell to be taken up by them; and it was the duty of the jury to discover whether the prisoner was guilty of the particular crime charged against him in the indictment. His lordship then carefully pointed out the different points for consideration. They would have to decide—first, whether the artificial horns were put on and the bulls inflated, and whether Paton did it or knew of it; second, whether he intended to deceive; third, whether he succeeded in deceiving; and after this they would require to consider whether it was in consequence of the deceptions that the prizes were awarded to him.

The jury retired, and after an absence of about twenty minutes, returned with a verdict unanimously finding the charge Not Proven.

The prisoner was then dismissed from the bar.

Mr. Goudie, writer, Ayr, and Mr. Charles Brown, writer, Stranraer, were agents for Mr. Paton.

INSECTS AND DISEASES INJURIOUS TO THE WHEAT CROP.

In the year 1856 the Bureau of Agriculture and Statistics of Upper Canada offered a prize of £40 for the best essay on the origin, nature, and habits, and the history of the progress, from time to time, and the cause of the progress, of the weevil, Hessian fly, wheat-midge, and other such insects as have made ravages on the wheat crops in Canada, and on such diseases as the wheat-crops have been subjected to, and on the best means of evading or guarding against them.

On the 15th of April, in the following year, twenty-two essays were handed in, and received by the Committee of the Board of Agriculture, and the above prize was awarded to H. Y. Hind, Esq., M.A., Professor of Chemistry at Trinity College, Toronto. This essay, which is now before us, contains an interesting account of the most destructive insects infesting the wheat-crops in that country, and of the parasitic plants also, as rust, smut, pepper-brand, ergot, &c.

The history of the insect tribes is curious, as illustrative of the wisdom of Providence on the one hand, in furnishing the means for preventing their multiplication; and, on the other, of the advantages of good husbandry, as the most effectual preventive or cure of the evils of their presence. If we refer back to ancient times, we find that the ravages of the locust, the caterpillar, the palmer-worm, and other of the insect tribes, were amongst the most dreadful evils of the East, and were, in fact, the terrible scourges by which the Divine Being inflicted punishment upon the nations. We may account for their amazing numbers by the great extent of uncultivated land in those warm climates, which is always favourable to their production and multiplication. The same causes, also, have operated in the United States in occasioning the ravages of the Hessian fly, wheat-midge, &c., a large portion of the country being still in a state of nature; whilst that part under tillage is cultivated in so slovenly a manner, as to afford every encouragement to the insect tribes to multiply their numbers and extend their ravages.

The principal enemies of the wheat crops in America are, the Hessian fly, the wheat-midge, the Chinch-bug, the wire-worm, and the weevil. The third is the only one unknown in Europe, at least in such numbers as appear to attack the wheat crop in America. It is of the seventh order of insects (*Hemiptera*), the peculiarity of which is found in its beak or rostrum, which is formed for piercing and sucking, and enables it to find its food in the juices of plants and animals. The numbers of these disgusting insects is so great in some seasons, that the air is tainted with their loathsome smell—proving an intolerable annoyance to the harvestmen when reaping.

The Hessian fly *(Cecidonia destructor)* is supposed to have been imported into America in the year 1776 by the Hessian troops sent over by the British government from Germany, and is, therefore, one of the precious gifts bestowed upon that country by the wrong-headedness of George the Third. They first appeared in that year in Staten Island; from whence they gradually spread themselves, at the rate of fifteen or twenty miles a year, over the old States, and in 1816 reached Lower Canada, where they committed great ravages. They disappeared in that province in 1830, and were not seen *in force* again until 1846, from which time they have taken up a permanent standing.

It is unnecessary to give a description of this insect, which is too well known in this country to require it. Its habits, however, are of consequence to be known, in order to point out a remedy. The fly lays its eggs on the young leaves of the autumnal-sown wheat, and sometimes in the spring also. About thirty of these are deposited on the upper side of the blade. In a week they are hatched, if the weather be mild. The maggot, when clear of the shell, passes down the blade to the first joint, where it remains until it enters the pupa state. The infected plant in the following spring appears withered, and its foliage straw-coloured. This is occasioned by the insect sucking away the juices, which would otherwise supply nourishment to the shoot. It is at the crown of the root, where is the base of the sheath, that the autumnal brood of the fly must be sought for. It is remarkable that the maggot does not make any apparent incision in the stem of the plant, and must therefore draw the nourishment by suction from the pores. A depression, however, is produced by the obstruction to the circulation of the sap, which weakens the stem, and renders it liable to be broken off by a light breeze of wind at a more mature stage of its growth. Mr. Hind suggests that the mischief arising from the presence of the insect is owing to the non-deposition of the necessary amount of silica immediately under the body of the maggot, by which the straw is weakened at the joint, and rendered unable to resist the force of the wind. It is well known that those varieties of wheat which have strong flinty stalks suffer less injury from this insect than others of a more tender nature. A vigorous growth and abundant tillering—or, in other words, *high farming*—enables the plant to sustain the attacks of this enemy and maintain its healthy condition under them. On poor ill-cultivated land the evil culminates, and on thousands of acres of such land the wheat crops are annually destroyed in the United States.

The means proposed by Mr. Hind for arresting the progress of this insect are, first, *good husbandry*, which implies abundance of manure, deep ploughing, careful weeding, and a systematic rotation of crops. In the county of Suffolk (N. Y.), the land was so constantly tilled without manuring, that on an average not more than five or six bushels to the acre of wheat was raised. The Hessian fly put an end to this kind of husbandry, no other way being found to prevent injury to this crop by the insect than that of high manuring.

Second, *late sowing*. We should demur to this in this country, however efficacious it may be in America; and even there it is only certain varieties of wheat that admit of the plan with perfect safety and success.

Other methods, such as grazing or feeding off the wheat, rolling, and mowing, by which the autumnal broods of the insects are destroyed, and the spring broods prevented from hatching, are practised; but until the system of over-cropping and scourging the land is given up in the States, and a more generous course of husbandry substituted, the American farmers must make their account to be subject, from time to time, to the re-appearance and depredations of these pests, which are in fact, in a great measure, the results of their own slovenly and inefficient modes of culture.

The wheat midge *(Cecidomyia tritici)*, the wheat-stem fly *(Chlorops pumilionis)*, the common chlorops *(Chlorops vulgaris)*, the feather-horned chlorops *(Chlorops autumnalis)*, several species of the oscinis, with numerous other depredators of the insect tribes, are described in Mr. Hind's work, most of which have their counterparts in Europe, where they sometimes commit great ravages on the cereal crops. In England, improved systems of husbandry, if they have not banished these pests of the farm, have at least rendered their appearance less frequent *in force*, and less destructive. But in the United States they revel with almost uncontrolled sway, held in check only by inefficient expedients, whilst the more specific remedies of good farming, high manuring, a regular course of cropping, &c., &c., are rarely practised.

It is fortunate that Nature herself has provided remedial checks to the multiplication of the wheat insects, by the parasitic ichneumon flies which prey upon them. These, however, are confined to Europe, and are unknown in America. Wherever the wheat fly appears with us, the ichneumon also, in its three varieties, is sure to be found *(Enerytus inserens, Platigaster tipulæ*, and *Eurytoma punctrans)*. All these feed upon the wheat-fly, and check its ravages by destroying its lava as well as the fly itself. Birds, too, devour immense quantities of these flies; but their fondness for the wheat also makes the farmer rather jealous of their interference as a remedy as bad as, if not worse than, the disease.

Several instances of the multitudinous appearance of the various insect tribes on the cereal plants have occurred in this country during the past summer, but the damage inflicted by them has been confined to very few districts. The high state of cultivation into which most of the soil of the United Kingdom has been brought, strengthens and invigorates the plants, and enables them to withstand in a great measure the attacks. We have reason, too, to believe that in many cases the insects themselves are a migration from other lands, where they are fostered by the same defects in husbandry as in the United States. This is undoubtedly the case with the *Tenthredo*, or turnip caterpillar fly, which upon its first arrival on our coasts may be shovelled up in bushels-full. They have been seen coming over in "clouds, so as to darken the air."* The occasional appearance, at long intervals, of other insects, and amongst these of the Hessian fly, gives reason to believe that they also are a migration when they appear in destructive numbers, although now naturalized with us. Good husbandry and high farming keep them in check; but we cannot guard against the neglect of our neighbours on the Continent.

THE EARTHWORM AND HOUSEFLY.—The next time you go out on your morning or evening ramble, if you chance to see a worm in your path, do not kick it aside, nor step over it, but take it from the ground and lay it on the palm of your hand, and as it tries to crawl away you will experience a slight sensation of roughness on your skin. If you take a pocket lens, and examine carefully the under part of the worm's body, you will perceive several rows of fine sharp hooks, extending from one end to the other, each annulated division (for the worm's body is, as you doubtless know, composed of rings) being furnished with four pairs of these hooks, which are situated upon small protuberances on the creature's skin. These minute hooks cause the rough sensation alluded to; and that portion of the body on which they are placed corresponds to the abdomen of the higher animals, the hooks themselves being nothing more nor less than rudimentary feet to aid the worm in its progress. It has, perhaps, never occurred to you to inquire how it is, when you endeavour to draw a worm forth from the earth, that it can offer such resistance to your efforts as almost to necessitate your tearing it in two before you can extract it, and why, as soon as you relax your hold, it disappears with such rapidity under the soil. These hooks are the cause; they are retractile at the will of the animal, and operate so as not to impede its onward progress; but when a portion of its body is once extended, and has penetrated into the soil they keep it firmly fixed, whilst the remaining part of it is drawn after by muscular contraction. Now, is not this a simple but interesting feature in the anatomy of the worm that should be known to every one? yet how few, even of the best educated, are aware of its existence! How many anglers, do you think, are there who handle their poor victim as frequently as we do our pen, and are yet unacquainted with this fact? And as regards the fly: you need not even quit your study or parlour to have an opportunity of witnessing a strange, and, to the masses, inexplicable phenomenon connected with the insect—namely, the mode in which it walks upon the ceiling with its feet upwards, or progresses upon the smooth vertical pane of glass in your parlour window, setting at defiance a well-known law of gravitation. If you are not able to solve this mystery, ask some friend who possesses a microscope to show the foot of a fly under the instrument, and you will find that at the extremity it is furnished with a pair of membraneous discs, on which there are disposed countless minute suckers, that operate upon the inverted ceiling or smooth-glazed surface over which the fly is marching in the same manner as did the leather sucker with which, as a school-boy, you were wont to amuse yourself in lifting heavy stones—this is the simple but effective apparatus which enables the little creature to maintain its hold with security in any position. Nay, you may even, whilst lounging lazily upon your sofa, watch some little fly that has settled upon your coat, and is busily engaged in removing the dust from its wings; you will notice with what a facility it crosses its hinder legs over the wings, or raises the latter gently from beneath; and after having effected this cleansing operation, then rubs one leg against the other, to remove any particles of dust from those members also. But are you aware that for this purpose its diminutive limbs are covered with numberless hairs, by means of which the insect is enabled as efficiently to remove the dust from its wings or body as you are from your treasured volumes or pictures with your artificial brush of similar materials? — *Samuelson's Humble Creatures.*

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* Marshall's Rural Economy, &c., vol. ii., p. 287.

AUTUMNAL CULTIVATION.

Never in any previous year do we remember so favourable a season for the prosecution of autumnal cultivation. The sun has daily shone forth with unusual brilliancy; we have had a clear blue sky, without a cloud to intercept his rays, and the comet's influence has assisted to increase the temperature, and to produce this splendid summer weather. It has been glorious for enjoyment, and equally advantageous for work; and we congratulate the agriculturists of the kingdom upon the promptness, the energy, and the despatch with which they have availed themselves of so good a chance to effect the invaluable autumn fallow.

We have never before seen so much land, in any season of the year, under the culture of every kind of effective grubbers; "Coleman's," "Bentall's," "Biddell's," skim-ploughs, and common ploughs, are all in requisition; at every turn we observe the well-broked, well-baked surface of the soil; whilst the smoke ascending from many a field in the surrounding country shows plainly that bonfires of rubbish are burning, to the summary destruction of the farmer's foe, and to the riddance from the soil of many a robber weed.

Upon thousands of acres we have seen autumnal cultivation accomplished or progressing; and so effective, in most instances, has been the combination of man's skill and industry with nature's power, that the scorching rays of the sun have not allowed a single perennial weed to retain a remnant of even semi-vitality. So perfect has been the cleansing process, and so thorough the work of entire destruction in these cases, that couch-grass and its many relatives and neighbours are withered, sered, and dead.

This is saying much, but facts are stubborn things, and at the June meeting of the London Farmers' Club, in '57, it was well pointed out that autumn is decidedly the best season for a perfect fallow. Mr. Bond, then, said—

> "It has been my experience that August and September are by far the best months for the destruction of any amount of weeds or rubbish. It is then that the soil is peculiarly dry after the hot month of July, and after the removal of the wheat-crop. The sun's heat is excessive, the thermometer often standing for successive days at 85 and 90 degrees; the mean temperature also exceeds by 10 degs. the temperature of the combined months of March, April, May, and June, when the cleansing process is usually proceeded with, and in autumn the vitality of every plant is at very low ebb; thus the usual dryness of the soil, the extreme heat of the sun, the high mean temperature of the atmosphere, and the expended energies of the plants themselves—all favour the autumnal work. With judicious management the perennial weeds cannot live through it, and I am convinced more good can be done by one day's work in August or September than by five days of hard labour in the spring."

The present year even more than verifies the sound truthfulness of these remarks, and the general culture over extended areas in the kingdom shows the appreciation of the season and the system. The opportunity has not been neglected; further, the thermometer during the past month rose upwards of 100 degrees in the sun. Mr. Bond also remarked—

> "Should we succeed in the economical application of steam to field operations, as appears both probable and immediate, it is in autumn cultivation that such an invaluable adjunct as steam for a motive power would be of incalculable service. But without this assistance I have always been able, with the horse strength of the farm, to clean three-fourths of the wheat stubbles for early roots, and the remainder in the spring."

Steam power is invaluable, but we do not at present possess it to any extent for field culture; notwithstanding, we know of different instances this year in which, with the horse-power of the farm, the WHOLE fallow shift has been perfected by autumnal cultivation. It is a system of such intrinsic worth—embracing efficiency and economy in fallowing, a perfect aëration of the soil, improved and increased root culture, more stock, more manure, and more corn—that it must become a general system; and those who have neglected to adopt it, have to their own disadvantage failed to make fallow when the sun has shone.

We have seen hundreds of busy teams and busy men on numberless acres admirably carrying out autumnal cultivation; but yet we hear complaints, and they are from sporting proprietors. Autumn fallows and partridges do not agree: breaking up the cover injures the shooting; foul lands afford good laying for birds; 'tis pleasanter shooting, too, in overgrown stubbles than in good swedes or mangel-wurzels. The old keeper has also his say of condemnation; he hates—and all keepers hate—good farmers and good farming—"Birds can't thrive so—soon shan't have one"—and such a yarn! This is too much for the nineteenth century, with world-wide competition; and we invite such landowners to reconsider before they check the wheel of progress, prevent essential and economical culture, curtail the growth of root crops, prevent the increase of stock, and tend to impoverish themselves, their tenants and estates. Good shooting and good farming may be made to go hand-in-hand together. And West Norfolk is a proof that stubbles and rubbish knee-deep, large fences, and wide borders are not essentials for good shooting or an abundance of winged game. Partridges must be secondary to progress, and autumnal culture may not be prevented or impeded. "Property has its duties as well as its rights."

THE EARL OF LEICESTER AND HIS TENANTRY.

There are some few names prominently associated with the rise and progress of improved agriculture. They are those of men who led the way when their followers were but few, and the chances of success anything but encouraging. They trace back, indeed, to the very foundation of our modern system; long ere the steam-engine was in use, or the reaper known of. They were content to make the most of the materials they found at hand, with little hope, perhaps, of doing more than increasing the produce of their own individual properties. And yet it is remarkable how effective their example gradually became, and how such estates are still looked to as the very models of good management and superior husbandry. They have not even now been surpassed in the race for excellence. On the contrary, they fully maintain their ancient prestige; and Woburn, Holkham, and Yarborough are landmarks that still serve us as well as ever they have done.

Honestly, this could scarcely have been expected. It is not every son that inherits with the domain the tastes of his father. It is not every one that will make a good country gentleman. How often does the heir look upon his lands simply as the means to support some other pursuit! How the timber falls, and the rents rise; and how the agent has instructions simply to pay in all he can, and to lay out as little as possible. Or, a more passive spirit may reign, content enough to keep things going as well as they have been, and to wish for no more. We repeat, however, that the great properties we have referred to have fortunately escaped either of these fates. The Duke of Bedford's tenantry, and the Duke of Bedford's system are at this moment perhaps more deservedly famous than ever; while we have a notable instance, within this week or so, of how the hospitality of Holkham is never so much in character as when it summons us to the sweet home of English Agriculture.

In a word, we have another "Coke of Norfolk." Neither rank nor title can gild over his claim to that high distinction. It is the father's son who now holds Holkham in trust for him and his, with the same worthy ambition to do his duty to those about him. And he has not failed, either. It needs not to be recorded here that the Holkham farming and farmers yet keep their ground amongst the first of their order. But we may let these tell for themselves how much they regard the landlord they hold under. Even the strong comparison they must involuntarily have drawn has not told against him. What Mr. Coke was, Lord Leicester is—at least, so say those who should know him best. The tenantry on the estate have just paid his Lordship one of the most graceful compliments they had it in their power to do; they have presented a good portrait of him to the Countess. As we briefly mentioned last week, this was made the occasion of a great day at Holkham. The House was once more, as it so often has been, the home of agriculture. Farmers and their wives thronged in—for farmers and theirs were the honoured guests of the entertainment. But it was something more than mere feasting, or common-place compliment-making. The happy influence of one man spoke through it all, and of one who has proved himself equal to the great name that was left him. Let us hear the Holkham tenants declare themselves on this point. Mr. Hastings, then, to whom was intrusted the pleasant duty of presenting the portrait, previous to reading to her Ladyship the address prepared for that purpose, had a word or two to say to his Lordship himself: "During the period which has elapsed since your accession to this noble property, this mansion, and the estates which occupy an influential and important space in both divisions of our county, we have watched with infinite satisfaction the interest you have evinced in the cause of agriculture, keeping alive a spirit of improvement which bears date from the early days of your most noble father, and redeeming the pledge with which you followed him by carrying out, in matters between yourself and your tenantry, that golden rule and Christian motive of action, 'Live and let live'."

Mr. Overman, who followed, said, somewhat proudly: "The father's deeds are matters of history; you cannot look round this great county without seeing something to remind you of what he has done, and of what he would have done had he lived. But," he continued, "I am sure that all this, and more than this, will be carried out with the greatest energy, exertion, and perseverance on the part of the noble lord who is now at the head of the house of Holkham. These things seem to come so fully and entirely home to all of us, that we cannot step from the park without seeing the advantages his Lordship renders, the good he does, the exertions he makes, the trials he institutes, and the skill he brings to bear on those trials; and these things conduce, not only to his happiness, but to the happiness of every one around him. Such things can only be done by the greatest determination; and you know Lord Leicester well enough to be aware that he lacks none of that quality. What he says he will do, he does; but he never says he will do a thing without first weighing it well in his mind, and knowing it to be for the benefit of all before it is undertaken."

Mr. Dewing declared "they had for some time wintered and summered Lord Leicester; and the testimony this day borne to him carried with it a verdict that as a landlord he was entitled to receive their respect and esteem." And so on. Mr. Hudson, of Castleacre, was alone prevented adding his word by the recent death of his son. It was not, however, a mere matter of landlord and tenant only. Mr. Hastings shall complete *his* portrait of his landlord in a few more words—testimony that must have come especially grateful to a lady who has done her part so well and so earnestly in carrying out the duties of a high estate. "My Lord, your tenantry feel it to be a matter of much congratulation that the cottages of their labourers have received your kind consideration, and that both Lady Leicester and yourself aid so liberally in supporting the schools for their education."

It was only last week that, in driving through Bedfordshire, one could almost tell to a yard the Woburn property, if only by the famous model cottages we were continually passing. It is the same in Norfolk. In fact, the effect of improved agriculture is almost illimitable. There was hardly a speaker at the Holkham gathering but who dwelt on this. Be he Peer of the realm, member of Parliament, plain country gentleman, clergyman, or yeoman—each alike, of his experience, owned to the common good that must follow from being able to trace it back to a good landlord. Mr. Gurdon, more particularly, put this so forcibly, and pointed a compliment so neatly in doing so, that we gladly avail ourselves of his definition. There is a tone about it altogether congenial with our own object and opinions: "It has been said that the relations between landlord and tenant are so close as to be almost inseparable. I go further than this, and say that they are one and indivisible. I believe it to be impossible for a bad landlord to have a good tenantry; and I hope I may also add that it is impossible for a good tenantry to have a bad landlord. In these days of perfection some model is always being held up to us. We have model schools and model farms; but I think there is something which is of equal importance, and which perhaps, in your eyes, is still more valuable, and that is a model landlord. It is not for me to say more on this subject; but I think you must be much duller of comprehension than I take you to be, if you cannot picture to yourselves a landlord who, living among his tenantry, and known to them all, taking a lively interest in the social condition and welfare of the labouring population of this county, warmly attached to the place of his birth, and revering the magnificent bequest which has descended to him through the care and talents of his ancestors, spending his time, or at least a large part of it, in improving his estate, assisted by a tenantry who are surpassed by none upon any estate in the world, may be held up as the model of a good landlord."

It is, indeed, for this that we have told the story of the Holkham picture. It is to show to others what the landlord should be, and what, if he do his duty, his recompence must be. It comes not only—though it will come too—in better rents, closer paid; but in the gratitude and respect of a whole community. Men like the Cokes of Norfolk do great national service. It is impossible for their example to be without its effect; and that, as we have demonstrated, in the most direct of all channels. A property and a people once thus improved rarely go back. Henceforth owner and occupier keep one another well up to their standard of excellence; and there gradually generates as much "Family Pride" in good farming, as in family pictures, ancient oaks, deeds of arms, or a very pedigree itself. Does not Lord Leicester's portrait prove this? We look to the country gentlemen of England for an answer.

The painting itself, by Richmond, attracted considerable attention in this year's Exhibition of the Royal Academy, not merely from the excellence of the likeness, but the somewhat Der Frietschutz character of the costume—long yellow boots, short velvet hunting-frock, and a small scull-cap, which would not promise to keep off much wind and weather. But the general effect is very good, and the chief point most successfully attained, as everybody knew in a moment "who it was."

A COUNTRY COTTAGE.

[The following is a pretty peep at a country cottage, the praiseworthy certainty of the last line making a homely but not inapt termination.]

The stream ripples bright by my cottage,
  The sunshine is bright on the stream;
And the wee pebbly stones, in the sunshine,
  Like diamonds sparkle and gleam.
There are hazel trees kissing the water,
  And plumes of the fair meadow-sweet;
And down by the hazels sits Jeanie,
  And dabbles her little white feet.

The robin peeps in at my door-way;
  The linnet looks down from the tree;
And here, pillowed up in his cradle,
  Wee Sandy sits smiling at me.
My milk-pail stands bright in the corner,
  My tins are all bright on the shelf;
And the white supper-cloth on my table
  Is clean, for I washed it myself.

CULTIVATION OF THE TURNIP.

In former papers upon the cultivation of the turnip we have considered the proper systems under which this crop is raised upon sorts of different characters and under various circumstances. We have thus traced its management up to the period when its growth commences. We now purpose to notice the cultivation which the plant requires during this time; for however good the previous system adopted, and however suitable the manure may be, the whole is rendered valueless unless the subsequent care bestowed upon the crop is such as to render it productive.

The first operation which is necessary after the sowing of the crop is the hoeing. There is frequently a doubt in persons' minds as to the time when this should be commenced. Until the plant gets into its rough leaf it is not safe from the attack of the turnip beetle; and it would manifestly be impolitic to thin the crop whilst it is still in danger of being destroyed by this enemy. We are therefore unavoidably brought to this point—that it must be after the crop is in rough leaf. As soon as the crop is well into rough leaf, and the plants firmly settled into the land, the hoeing may be commenced. If it is delayed so that they draw each other up, the plants become weakened and their aftergrowth is prejudiced thereby. The distance at which they are hoed out varies in different districts; but the quality of the soil and the time they are required for use must be our guides. As a rule few persons hoe them out sufficiently wide; and there is strong reason to think that a greater freedom for the roots is calculated to increase the crop very materially. If the land is good the roots will grow to a larger size than on poorer soils, and for this reason should have more space; whilst, on the other hand, when the land is inferior in quality, more roots are desirable, because they are sure to be small.

The time at which they are required is worthy of consideration; for, if the roots are wanted late in the spring, a moderate-size root is always more firm, and withstands the frost better than large roots; consequently those intended for spring use should not be allowed as much room, and may be left thicker in the rows. This is the best way to increase the number of roots, for it is far preferable to any decrease in the width between the drills, as we require under any circumstances sufficient room for tillage; and the same space is therefore necessary. From 24 to 28 inches is the best width. The early-sown crops of swede may be allowed the 28 inches with much advantage, for the horse-hoe can work much longer than it otherwise could; but as it comes later in the season, the width may be decreased to 24 inches; but less than this is not desirable. The hoeing in the rows is generally done by hand; but some excellent machines are now made for performing this by horse-power, which will be of valuable assistance to large turnip growers, especially in districts where labour is scarce.

This part of the work being done, the singling of the plant next claims attention. It is the experience of practice as well as the opinion which a knowledge of the principles of vegetable growth would lead us to, that plants thrive more luxuriantly from standing alone. Few will be disposed to dispute this fact; still there are some who hold a contrary opinion. The practice of singling late-sown turnips is less general, and many advocate that such turnips should be left double. This can certainly be understood when the desire is to have *small* turnips, for this plan secures them of a small size. When the land throws the roots larger than they can withstand the frosts, there may be just cause for the practice; but this very fact proves the importance of singling them when you require a heavy crop. It is, however, doubtful whether the same result as regards size would not be more beneficially attained by having the plants singled, but left closer in the rows, and the crop thereby increased in weight.

The horse-hoeing between the rows is unquestionably a most valuable process, and every day's experience and observation affords convincing proof of the fertilizing influence of this operation. The more we know of the character of our soils and the influence of atmospheric agents upon them, the more do we see that we have a great reward in the diligent cultivation of the soil. We well know how that the atmosphere contains matter valuable for the development of vegetable growth, and the more we expose the soil to its influence, the more fully does it imbibe these fertilising matters. In like manner by passing the rain through the soil we derive other advantages of a similar character, and at the same time we promote the decomposition of the soil and the manures it contains. We may safely rely upon it that we do not half value the influence of any of those tillage operations, which stir up fresh portions of the soil and expose them to the air. Every time the horse-hoe goes over the land it effects this, and renders the soil more and more capable of imbibing those fertilizing ingredients which have been proved to exist in the air. Thus not only is the land kept clean by the destruction of weeds, but the roots of the crop, having greater freedom for spreading, extend over the entire space between the rows, and are thereby enabled to gather larger supplies of food for the crop, and consequently this increases the produce. Rely upon it, the active and persevering use of the horse-hoe between the rows is of the greatest importance for promoting the fertility of the land, and the weight of the crop. It should not be confined to the surface, but the soil should be stirred *deeply*.

The mildew, which is a fungus growth upon the leaves of the turnip, is a sad trouble to the farmer in the autumn of the year. As soon as the energy of the plant begins to decline, any check which the crop receives, either from hot weather or from a deficiency of nourishment, predisposes the plant for becoming a prey to this fungus. When the mildew has attacked a crop severely, its further growth is exceedingly small; for it rarely happens that the energy which the plant had lost before the mildew commenced is ever regained afterwards. If anything can do it, the application of some manure between the rows, and the use of the horse-hoe late in the season will be found powerfully conducive towards the prevention of the mildew, by keeping the plant in a growing state; or, if attacked, will check its progress. These agencies, combined with a judicious application of the manure used for the crop as before explained, will be found the most effectual means for preventing the occurrence of mildew, and will materially encourage the production of an abundant crop.

MEETINGS OF IRISH SOCIETIES.

Mutual Dependence—Farmers' Benefit, the Landlord's Benefit, and *vice versa.* &c.

At the Gowran Farmers' Society, Mr. **Wade** said, in alluding to the report of Irish agricultural statistics: It appeared that there was a diminution in the cereal crops this year, but it was compensated for by a great increase in the green crops. This coincided in the view he had always held, that if they had not plenty of green crops, they could not have good cereal crops—they could not go on in the old style, tearing up the ground without renewing it. The farmer should consider that he was only providing for an improved state of his own pocket when he laid out money in improving the land. They were getting rid of the antiquated idea that every landlord who wished to encourage improvements only wanted to raise the rent. They were beginning to depend on each other; and all knew that the landlord, if a good man, would not raise rent on the man who improved his land. It was for the landlord's own advantage that the tenant should be prosperous; all were interested together, and depended on the same process. The landlord, if he wished to prosper, should assist in the improvements of the tenant; the tenant who wished to prosper, should improve the land, and make the best of it. The land was the landlord's income—his funded property, if the term might be used; but he could not use that property to injure the farmers under him without generally doing serious injury to himself.

At the North Dublin and Fingal Society, Lord **Talbot** said: He might now say a few words against the use, or rather the abuse, of agricultural implements. He was sorry to say that a mistake had occurred with regard to them; but he was glad to observe that no such feeling existed in that part of the country. It now required a great degree of intelligence on the part of the farmer to keep his ground; and unless some improvement was introduced, large tracts would become sheep or cattle pasture, and it became incumbent not only on those who wished to increase the amount of tillage in the country, and who wished to keep as large a portion of the labouring classes in the country as possible to cultivate their farms; it was peculiarly incumbent on them to introduce such improvements as would enable them to carry on a successful system of cultivation. For this reason, so far from the labouring classes opposing the introduction of the scythe or reaping machine as against their interest, he considered that nothing could be better devised or more calculated to ensure them employment. Everything which tended to simplify labour, which went to dispense with manual labour, which produced a machine to do that which the arm of man had hitherto been employed to do—all this tended to exalt the position of man; and instead of man being a mere machine, he became an intellectual creature, and became accustomed to those things in which the action of the mind was required; and, therefore, he thought it should be the object of every philanthropist to introduce a system whereby men as far as possible should cease to be "hewers of wood and drawers of water," and by which they might have more time and opportunity of devoting their faculties to those nobler objects for which they were created. For these reasons he thought it was a mistaken view which many of the labouring classes had taken in considering that those machines which were introduced for the reduction of human labour would not ultimately turn out to their advantage. At the same time, he perfectly agreed in the propriety of introducing those changes gradually, so as that there might be no undue interference with labour; and he would, therefore, suggest the introduction of the scythe in the first instance, and afterwards by degrees the reaping machine, and he was sure that in the end neither would be disadvantageous to the labouring classes. It must be satisfactory to them all to see how much regard was being paid to the comfort and interest of the labouring classes.

At the Carlow Society, Mr. **Hartstonge** said, in alluding to tillage, and particularly the green crop culture: He did hope and trust that in that very important branch of our society we should, year by year, have increasing competition. What brought out the immense agricultural wealth of Scotland? and what enabled the small farmer in Belgium, who, on seven or eight acres of light sandy land, was able to do better for himself and his family than we can do on twenty or thirty acres of land in this country? It was not by allowing three-fourths of a light tillage farm to remain in poor herbage, and making the other quarter pay the rent. It was because the farmers in those countries he alluded to made agriculture a study, a duty, and a pleasure, and because the farmers till their land to the best advantage, and because no man there would keep one single acre of land more in his possession than his capital and his means would enable him to cultivate. There was no district in Europe more adapted for becoming a thoroughly agricultural one than this, or a locality where those results he spoke of could be better developed, if those things were practised and understood. And how were these things to be done? He thought the landlords ought to take the full advantage of the greatest boon, perhaps, ever conferred by any legislature upon any country, *in the facility of obtaining money upon the most advantageous and cheapest terms to drain and subsoil the land*, to erect houses for the production of their stock and crops, and for the making and preserving of manure; to enlarge and square the fields, and to make good fences and farm roads. And let the landlord, or his agent, make himself personally acquainted with the character, the quality, the capabilities, and the requirements of every tenant, and of every field upon the estate. He thought it ought also to be arranged that the tenant should be provided, at first cost, with the best implements, the best seeds the best hand manures, and the best sires, and that such tenant who required it, and deserved it, should have credit for such matters until after harvest. These things, he was of opinion, could easily be arranged and done, and, he thought, ought to be done. Let local encouragement be given to carry out practically the principles of this society, in encouraging the successful competitors—particularly in green crops and tillage—by adding something to the premiums won from this society, as, he was aware, some of the presidents of the society did. He hoped all would follow that example. He did hope and trust that the tenant would join hand and heart in this undertaking—that he would cultivate and manure his farm in the best possible manner. Let him urge his landlord to do what he had ventured to recommend, and let him freely take upon himself his full share of the imposts; as to him, during the existence of his lease, were to accrue the benefits. When such things were, we should have our farmers wealthy and independent, and our labourers comfortable and contented, and no more emigration. Let them depend upon it, when the farmers provided themselves with an ample supply of good fodder and good roots, a thriving stock would compensate them for more than what they had provided for them, and he assured them we should have the blessing of Providence vouchsafed on such efforts; and this country—and this particular district—would become not only the Lothian of Ireland, but would vie with the Lothians of Scotland, "and a bright era shall dawn on us, and this country shall bask in the sunshine of prosperity."

THE ENGLISH FARMER IN FRANCE.

Harvest being finished, to those of my brother-farmers who feel inclined for an inexpensive, amusing, and instructive tour, I beg to recommend them to come to Flanders and Belgium. Four friends (one speaking French sufficiently to understand and be understood is enough) should join, with a four-wheeler and a horse, which they should bring with them; and I'll warrant their daily expenses will not be more than one-half the cost of the same journey in England. No turnpikes; feed of corn 3½d.: the best roads in the world, and no hills: any horse will do one-third more miles a-day than at home. Start from Irongate Wharf, Tower, London, and in twelve hours you are at Dunkirque. Times for starting *vide* "Bradshaw." Beds at large inns are only 1 or 1½ francs; and at the *petits hotels* in the villages and small towns they are clean and comfortable at from ½ to 1 franc. Bring English money, and you will get 250 pence for every pound, whether gold or bank notes. Of course, the passport must not be forgotten, or you'll not be allowed to land. Any further information I'll be happy to give, on receipt of a letter. Come, I say, by all means; and see *why*, with wheat at this price, the farmer thrives. 'Tis because he grows so many other paying crops our obstinacy or our Government prevents us raising. Where were all the farmers' friends when free trade was discussed?—did one stand up and claim the right to grow tobacco, or roots for sugar and alcohol? We can grow wheat as cheap or *cheaper* than the Frenchman; and where would he be without the sugar factories? *Some day they must be general in England*, but why not at once? Why do not all the farmers form an association—a Free-trade League—to extend that freedom of commerce which is given to others who buy their corn, and not to them who grow it? I am sure the majority of my brother-agriculturists cannot know this, or they would be more anxious. Think of a farmer of, say 300 acres heavy arable land, growing beet-root, wheat, beet-root, wheat, clover, wheat—*i. e.*, 100 acres of beet-root, 20 tons an acre, and selling it for 12s. or 14s. or 15s. per ton, receiving £1,400, and at 10s. to 12s. a-ton buying back the pressings! which in fact is *all* the fattening quality of the raves: the juice to animals is worse than valueless. The land is in a constant state of advancing improvement. Guano and rape-cake are all the manures required, and a sufficient number of beasts would be tied up to consume in litter the whole of the 150 acres of wheat-straw. This really seems such a picture of prosperity, that it looks too good to be true; but that it is exactly the fact here, *come and see*. Alcohol can be manufactured from beet in England at a profit. There are some trials being made, but I fear their processes are hardly correct. Of course, we cannot expect to be allowed to do this without paying duty. Wheat on the average will seldom be much above 5s. a-bushel, unless war or some other *unforeseen* event arises: at that price it cannot be a remunerative crop. At this moment, were not barley, other corn, and all other things selling well, we should hear a great outcry among the landed interest. We have always been told to depend upon ourselves; *let us do so*: let us obtain permission to introduce such crops as we please—those paying duty benefiting the revenue as well as ourselves. This is simply a just demand—a right which has been most unjustly withheld from us. We have countless agricultural societies; why do they not take it up? To those who prefer *hearing* to *seeing* these facts, I shall only be too glad to give all the information I can. I have devoted my time to it the last eight months, and I will not relax till I have a factory in force in England on a proper principle, with no ideal improvements, but the principle which has made the fortune of many during the last five years, and is invariably acknowledged to be sound and good. I cannot help enlarging on this subject, as it seems to be the *most important* manufacture *connected with agriculture* of the present day. Many farmers here are themselves distillers; others press it with a four-horse power, and sell the juice, thus saving carriage on the roots; but all grow the crop, and all admit it is the best paying one. Wheat here is the worst, the £ s. d. lie in a nut-shell. Can the farmer produce it at 14s. per ton? certainly; then at that price, at what price (at the trade strength) can it be manufactured? and, lastly, at what price will it sell? I am told the grain-distillers of England set their faces against it. Let them. It can be produced so pure and tasteless, that it can be flavoured with any kind of spirit. If I could find myself encouraged by my brother-farmers—if I could find they felt (if my statements are true) the importance of this matter, it would greatly encourage me. To any who will write to me on the subject I shall really feel obliged; but I am sorry to say, he who works for the public always finds—'tis said—an ungrateful master.

I have never travelled much in England during harvest, consequently have not had much opportunity of seeing the many different ways of "hooding" shocks. In Kent, near Seven-Oaks, I have seen long wheat shocks covered partially with, now and then, a hood sheaf, doing more harm than good. Here the sheaves are tied much smaller than ours; twelve are put in each shock in a circle; in threatening weather three men proceed to hood them, each holding up and spreading an inverted sheaf, which three sheaves are kept thus placed by two of them, while the third fastens a straw band round them. It is very quickly done, and secure from rain and wind when finished. I thought it a most excellent plan in a wet harvest. Their mode of cutting is what we call bagging: but their "hook" is not a hook; 'tis like 18 inches of the blade of a scythe, fastened at a right-angle to a handle 18 inches long also—consequently the labourer has no occasion to bend his back like our men; and in his left hand the harvestman carries a stick about a yard long, with a piece of iron at the end slightly hooked. They make capital work of it, and gleaning is not very profitable. Their low waggons are very suitable for small farms, as the horses being so quickly detached the vehicle is always left standing at the corn "cock," while the horses return for another load. I have never yet seen an oblong stack as with us. A fortnight after harvest not a stubble is unploughed; and so tender is the soil, 'tis frequently done with one horse—of course not deeply. The crop of wheat is not good, but they have others which balance it; the rapeseed is excellent, also the "oillette" and the "chamomine"—all oil-producing seeds: the betterave never looked better.

In this country, where a succession of green foddering crops are thought so much of, every exertion is made to obtain a return from the land between harvest and Christmas. Their multitude of productions are harvested at such different periods, that it gives them every advantage, both in time to sow and to regulate the sowing of such first as require most time. Spring tares and coleseed mixed are cutting now: they have two kinds of coleseed, one much more gigantic in its growth than the other. Buckwheat; mustard—the latter we all know of; but I never in England saw buckwheat thus used; 'tis cut last, and sometimes, but very seldom, ploughed in. Now that we have such excellent skimmers, 'tis easier to crop our stubbles than twenty years ago; and it must be slight indeed when the crop for fodder or ploughing-in is not worth the seed; and we must not value the expense at more, as all now skim their stubbles that can, whether for cropping or not. Even chicory is grown as fodder; cutting it, on good land, three or even four times a-year: it lasts in the ground from six to ten years, and cares for neither excess of dryness, wet, or cold; it *is so early* that the first cutting is sometimes in April: it takes about 10lbs. of seed to sow an English acre: 'tis drilled a foot apart, and the plants should be 1½ inches distant from each other in the rows.

I should be glad to hear the opinions of those gentlemen who have this year tried the sorgho. I have some in England, sown in May, and sadly neglected during the dry spring; but 'tis eight feet high, and some sown in June is four feet. The more I hear of it here, the more confirmed I am in all I have stated as to its good production in all parts of England, and its adaptability to the southern counties for its saccharine and all other valuable properties.

THE ENGLISH FARMER IN FRANCE.

Lille, Oct. 5th.

THE BISCATHORPE LINCOLNSHIRE RAMS.

SIR,—The letting of Mr. Thomas Kirkham's Bakewell Lincolnshire rams took place on Thursday, Sept. 2. Mr. Kirkham appears to have brought his sheep as nearly to perfection as possible. The celebrated Mr. Skipworth, at Bakewell, in his speech, when responding, said: "He was glad to say that he had been gratified beyond all anticipation: Mr. Kirkham's sheep were really splendid specimens of what sheep ought to be." One hundred and twenty rams were let, and the whole amount was £1,376; of which sum £781 10s. was for the shearlings, which gives an average of £13 0s. 6d. No better proof of the high estimation in which Mr. Kirkham's flock is held could be had than the very numerous assemblage of agriculturists from all parts of the midland district, by which the letting was attended. The sheep speak for themselves, by the auctioneer's hammer, and the old breeders of Leicester sheep speaking so highly of Mr. Kirkham's sheep in their speeches, and, when responding, say volumes in favour of Mr. Kirkham's sheep, and No. 30 shearling being let at £20 to the eminent Mr. Bosworth, of Dishley, Leicestershire, and the very spot where Mr. Bakewell lived, and where the Leicesters take their origin, must be highly gratifying to Mr. Kirkham, who has plainly shown that a heavy fleece and plenty of stamina can be produced without *deteriorating shape* and *uniformity*.

SAMUEL ARNSBY.

Millfield, Peterborough, Sept. 15.

THE CULTURE AND PRODUCT OF THE SORGHO PLANT.

The growing importance of the Sorgho plant in many countries, and the increasing attention that is being paid to its experimental culture, justifies the notice we have already given to it, and seems to demand a few more words of elucidation at our hands.

The culture of the plant appears to be fast spreading over the Australian Colonies, in North America, and in Europe, and inquiries respecting it and applications for seed have recently been addressed to the India House from officials and others in the Presidencies. We have before us now no less than seven French pamphlets* and two English ones, specially treating of the Sorgho, and supplying many useful details as to the results, agricultural and economical, that have attended its culture and the manufacture of its products in the various departments of France.

It may be therefore useful to give a *resumé* of some of the information thus furnished by practical agriculturists, for the use of other distant cultivators, if not for the farmers of our own islands.

While we are ready to make every allowance for the enthusiasm and exaggerated opinions of those who have experimentally tested the culture of this sugar millet, there must evidently be solid foundation for the good reports thus furnished by cultivators, members of the Imperial Central Society of Agriculture, and metropolitan and provincial French agricultural journals.

If one-tenth part of the value assigned to it by its various eulogists be but true, it is certainly a most useful and important plant, of which it would be well that we should know more.

There is much that is new in these several treatises, which, as they are all of recent date, can scarcely have met the eye of many of our readers; and therefore an abstract will form a useful addendum to the information we published a month or two ago.

Scientific men seem scarcely yet agreed as to the specific botanic name which it is to receive. By some it is dubbed the *Holcus saccharatus*; with others it is the *Sorghum vulgare*, or the *Andropogon Sorghum*. But this is a matter of very little consequence at present. We shall deal with it here under its popular name of the Chinese sugar millet, or the sugar Sorgho, as the French term it. It is probably the same plant which was cultivated by Peter Arduino for sugar, in Florence, nearly a century ago. The dark black seeds of this millet are a broad mark of distinction over the other varieties; none of which have seeds of the same hue, although several varieties have red or dark brown seeds.

The seed is sown in France between the 15th of April and the 15th of May, from 6 to 9lbs. to the acre, according to the mode of sowing broadcast or drill.

The question of whether millet is an exhausting crop has been occupying a considerable share of attention, and opinion seems to hold that it is not, especially if the stems and leaves be returned to the soil; and maize would appear to be a good succession crop. Whether the plant is an annual or a perennial is yet undetermined in France. For a green crop, the oftener it is cut the better it thrives; and its principal merit on the Continent, in this sense, seems to be that it yields valuable forage in September and October, when the last crop of clover or lucern has been got in.

Not satisfied with the plant for its seed, for forage, and for sugar, the French are pushing it into notice for other economic products, and especially for the manufacture of spirit, cider, and vinegar. Thus, M. Hervé tells us that an hectare (2 acres) of vines furnish in the best years of vintage 100 hectolitres of wine, which yield, on distillation, 10 to 12 hectolitres of alcohol, worth at 50 francs about 500 francs. An hectare of Sorgho, on the contrary, will yield at the least 40,000 kilogrammes of canes or stems, which will produce 30 to 40 hectolitres of alcohol, worth 1,500 to 2,000 francs, or a difference in value of three or four times as much as the grapes will yield.

Rum equal to West Indian has been made from the juice in France. The syrup is largely used for preserving fruits. A pleasant beverage is prepared from it far preferable to raisin wine. Mixed with the juice of apples or pears, it possesses a pleasant flavour, which is much appreciated. A vinegar of good quality is made from it. The seeds form a nourishing and fattening food for poultry, and no insects seem to touch the plant.

Another advantage seems to be that the cane may be kept, when dried, for many months, without injuring the quality of the juice. This is a great convenience and a considerable superiority over the sugar-cane, which must be submitted to the mill within a day, or the juice turns sour, and the sugar is spoiled.

Although the south is the most favourable climate for the successful culture of the sugar millet, it is progressing towards the north. It has passed the Loire; is cultivated in Brittany, in Orleans, in Normandy, in Beauce, and close to Picardy. In Brittany it is grown, however, solely as a forage plant. But, at Amiens, M. Dumont-Carment has received a medal from the Agricultural Committee of his arrondissement for the introduction and acclimatation of the plant so far north.

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* "Recherches sur le Sorgho sucré;" par Louis Vilmorin. "De l'Introduction et de l'Acclimatation du Sorgho dans le Nord de la France;" par Dumont-Carment. "Le Sorgho sucré, sa Culture, &c.;" par Louis Hervé. "Le Sorgho à Sucre;" par Paul Madinier. "Monographe de la Canne à Sucre de la Chine, dite 'Sorgho à Sucre';" par le docteur Sicard. "Guide du Cultivateur du Sorgho à Sucre;" par Madinier et Lacoste. "Guide du Distillateur du Sorgho à Sucre;" par Bourdais. "On the Cultivation and Uses of Sorgho, or Sugar-grass," by W. Hartley; Messrs. Birdseye and Co., 12, St. Benet's Court, Gracechurch-street.

Although the seed has hitherto been taken little into account in an economic point of view, it appears that a hectolitre of 65 kilogrammes of the grain unhusked yielded, by grinding, 13½ kilogrammes of coarse and the same quantity of fine bran, and 37 kilogrammes of flour or semola. This was of a violet colour; but, when boiled with great care, the meal becomes perfectly white. But as this product would scarcely repay the trouble of grinding, it is chiefly for soups, puddings, and for feeding stock that it might be utilized.

We have brought together these further facts connected with the culture and products of the plant, because it has now held its ground for several years in France, and from its useful properties and adaptability to the climate seems to make progress, and to increase its repute. It is also now cultivated in Algeria, in Lombardy, and Tuscany, and in Russia, besides the other countries to which we have alluded. A few acres here and there might, therefore, be advantageously tried in this country. And with respect to the various pamphlets and treatises to which we have alluded, we may add that they are for the most part published at the Central Library of Agriculture and Gardening in Paris.

A FARMER AMONG THE CHEMISTS.

My dear Berzelius,—In one of my letters some time ago, you were invited into the field of experiments with manures; but please let us postpone that perplexing ramble until we have glanced at the great experiment *without* manure, successfully carried on at Lois-Weedon, but found useless at Rothamsted.

And here I must say, that in this, as in some other agricultural innovations, we practical people have stolen a march over you philosophers. It was not a Professor of Organic Chemistry, or a high authority in agricultural science, that proposed to revise with modifications the wheat-growing tillage of Tull; and when an amateur-farmer first made known his wonderful successes in this system of culture, there were not wanting eminent teachers who pronounced them illusory and of short-lived promise; while others hesitated to commit themselves to an approval, and were little less sceptical than the husbandmen they are supposed to enlighten. Professor Anderson declared, "It is my belief that Mr. Smith is now spending the dormant capital of his land, and that, sooner or later, he will find it requisite to apply manure." However, Mr. Smith, undismayed by a prediction, continued to sow and dig and pulverize, and at harvest confronted the Professor with "five quarters per acre;" another year succeeded with the same high produce; the harvest of 1856 gave 37 bushels; of 1857, 36 bushels; and the last one of 1858 has again brought the handsome yield of 5 quarters, this being the twelfth crop year after year without any manure, or any portion of the straw having been returned to the land. Or to put the case more correctly, there has been a course of dead-fallow and wheat for this length of time, half the ground producing as great a crop as the whole would do in common cultivation.

How much longer those luxuriant triads of stout stems will continue to bear such a wealthy load of bold grain, let no man venture to opine; for as yet there are no signs but those indicating a probable infinity of the series, or, at any rate, foretelling that for years to come the exhaustion cannot outrun the restorative power of a dressing of guano or nitrate. I must confess that, while the Lois-Weedon trenching went "deeper and deeper still," I fancied the virtue of the additional inch or two of subsoil each year was the secret of the successive croppings, and that when no perfectly fresh supplies of soil were procured from beneath, the ground would no longer answer so prolifically to the call of the spademan. But such fears are baseless: the double-digging of the clay piece alluded to had reached from 18 to 20 inches deep five years ago; and, having all been made friable, and been kept so by the buried short stubble, has required no more than one spit deep (I believe) for the last four years, during which the produce has been a *maximum*, and in all likelihood it will not require more for many years to come. In fact, Mr. Smith has demonstrated if not the perpetuity, at least the very lasting capabilities of his system of wheat husbandry, and we may say that he now possesses two fertile staples, each ten inches thick, lying one upon the other, both created by the long process of gradually deepening tillage: at present, he can get prime crops from the pulverization of the upper staple; and when in a course of years a weaker productiveness may be threatened, he will simply have to draw once more upon the resources of the lower staple, gradually eating down into it with the fork, an inch or two in a year; and then, when the full depth is reached as at first, why should not another series of years of single-spit digging again suffice? From the character and quality of the soil upon which all these marvellous results are growing, I suppose that the stratum of 20 inches' depth contains mineral constituents enough for some hundreds of large crops; and the latter harvests having proved that a sufficiency of these matters is rendered available for the wheat by the tillage of the upper half, there seems every reason to expect an equal supply from the lower half of the staple, when it shall be brought up as a relay. Then, as fast as the minerals are carried off in the crop, they will be furnished from the gradually-disintegrating subsoil; and when centuries have, by abstraction of material, lowered the level of the surface say one inch, the staple, being maintained at 20 inches' thickness, will have simply sunk one inch down into the subsoil, which it has incorporated with itself. There is a fear, however, that the atmospheric supplies may not be secured in sufficient quantity. Ceres may faint for lack of the smelling-bottle. Where shall the ammonia be found?

For eleven years, Mr. Smith's tillage has provided in some way so plentiful a store of nitrogen, that his crops will not bear the slightest addition of it in manure; and he is compelled to be careful how he feeds them even by the mechanical agency of the hoe. There is proof that he is able, as yet, to prepare enough of the aërial or organic nutriment, if the stock of raw material will hold out, or be naturally replenished. According to analysis, there exist about five tons of ammonia per acre in the 20-inch staple—a good capital to fall back upon, in case the annual deposits from the atmosphere should fall short of the drawings taken out by the crops. After a dozen good crops, the soil is thus rich in ammonia—so rich, indeed, that, instead of being less than at first starting, there is every probability (from the fine productive condition of the ground) that this element has accumulated during the period of their cultivation. There is, then, as much reason for expecting a continuance of food-supply from the atmosphere as from the soil, and no ground for apprehending that the capital is being dissipated from the land, instead of being caught from external sources. I have intimated that the stock of ammonia contained in the soil—and which is equal to the quantity abstracted by 60 good crops—might be had recourse to, and a portion of it be used up, in case enough could not in future be trapped from the air; but I hope such an expedient will not be found necessary. Indeed, it is very likely that the amount of soil-nitrogen made available by the tillage processes may be in proportion to the total quantity of unavailable nitrogen present at one time; so that, were the bulk reduced, a diminished yield of this constituent in an available form might not be obtained without a much greater and continually-increasing amount of comminution and exposure of the soil. I believe that, so far from the "dormant capital" of ammonia being gradually expended at Lois-Weedon, the supply for each crop is obtained from atmospheric sources year by year; and that, over and above this, there is an actual augmentation of the permanent store laid up in the land. For the superior excellence of the latest crops betokens it. The land is plainly more prolific than it has ever been before. Again, comparing the analysis of this soil, in its present condition, with that of a very good average wheat-soil at Rothamsted, Mr. Lawes finds it to "excel in strength," by reason of its larger proportion of this valuable element; and if the ten crops grown upon it have removed their ammonia out of the land, without compensation from the atmosphere, Mr. Smith's field must have been (when his cultivation began) the richest wheat-soil ever heard of. But it cannot have been so: the subsoils at Lois-Weedon, at Rothamsted, and elsewhere, contain only from one-half to one-third as much nitrogen as the surface-soil or staple; so that instead of Mr. Smith having gradually consumed a store of nitrogen out of his subsoil, he has replaced a 15-inch stratum of subsoil poor in nitrogen, by a deepened staple *rich* in this substance, which therefore it can have acquired only from above-ground.

I ask you, Berzelius, just to consider this fact over again:—Fourteen years ago the clay piece at Lois-Weedon had a staple of five inches, the subsoil being principally yellow clay, and in some places a mixture of sand, gravel, and clay; it was under pasture, and not very good land either; and there is no proof whatever that the subsoil contained an unusual amount of nitrogen, or even so much as it does now. By gradually sinking spade-work, and elaborate pulverization, the ground for twenty inches in depth has been transformed into a friable mould of good quality, peculiarly rich in nitrogen, yet having less of this element, the lower you go for a sample. From whence, then, can the total increase of nitrogen have come, except from above-ground? The staple-soil contains more nitrogen than the subsoil: the staple-soil, more than doubled in bulk upon every acre, has displaced a large amount of subsoil; therefore the quantity of nitrogen must have been greatly increased. Q. E. D.

And you will perceive, also, that, as Mr. Smith's twelve crops without manure have left the land better furnished than before with nitrogen, the perpetuity and even improvement of his yields is a demonstrated certainty—as far as this one element is concerned. And this, I suppose, is the only ingredient you ever feared would fall short. But everybody now knows that cereals *can* be cultivated in successive crops without manure; all the while abstracting from the soil (or air?) more nitrogen than has been ascertained to pass into the soil from atmospheric sources. The latest instance is that of Mr. Lawes' barley. In a late "Part" of the *Royal Agricultural Society's Journal*, he states that six successive crops of barley, grown on unmanured ground, contained in grain and straw 170lb. of nitrogen—considerably more than the quantity supplied to the soil in rain, and other aqueous depositions in the forms of ammonia and nitric acid. So that, whether the plant itself inhales it from the winds, or the earth arrests it by simple contact with the atmosphere, the precious element does come in ample abundance, in spite of all the rain-water analyses thought to show the contrary.

Yours, &c. J. A. C.

RISKS OF HORTICULTURE.—It is very easy for a writer to say that cauliflowers like rather a stiff and heavily-manured loam, and beet a very deep and fine mould, in which there is no recent manure; but the fact is, there are many other conditions essential, and we cannot judge fairly of the growth of anything in a soil until that thing has actually been tried in it. Tell me where, within a telescopic view of the metropolis, can they grow clover as they do in Hertfordshire; or where did you ever see such celery as they raise in the rich loams beside the Thames, a little to the west of London? The same cart-load of mould put down on the Kentish chalk would produce a very different result to what would follow were it shot on the gravel of Hampstead; and if you get into the Fen country, you might find gardening quite a different affair to what it would be on the sides of Malvern Hills. Therefore, before you risk much in seed, and labour, and rent, make a fair guess as to the nature of the crops best adapted to your position If you grow for market, you must be very much guided by the nature of the demand for certain articles. A man may grow strawberries for Covent-garden, and get three shillings an ounce one day, and sixpence an ounce the next, and these fluctuations must be taken account of by the man who intends to speculate in allotment and garden culture.—Floral World and Garden Guide.

"NOT PROVEN."

There are certain set phrases it is alike difficult to define and dangerous to rely upon. "The prisoner was attired in the height of fashion"—that is, in a satin waistcoat all covered with rings and chains, a sky-blue neckcloth, and "superfine" black continuations. Or, "The dinner was in Mrs. Jones' usual style of excellence;" which being interpreted means indifferent fare, badly cooked, and worse served. Or, "The worthy chairman returned thanks in an eloquent address"—remarkable, of course, for painful pauses, miserable reiterations, and bad grammar. In fact, as often as not, these conventionalities of speech have almost a reverse signification to that a first reading would give them. The law especially delights to deal in such contradictions. A six-foot fellow, as strong and as stout as a Guardsman—as very likely he is—comes complacently to be regarded as "an infant." Another, well-known to be, and quite ready to admit that he *is* guilty, is judicially advised to affirm that he *is not*; while in Scotland, when a charge is directly proved against a man, they say it is "not proven."

There is a nice distinction in this. It does not go so far as to say a man is actually guilty, or really innocent, of the offence urged against him, but merely that there was not sufficient evidence to prove it. So it has happened with Mr. Paton, the celebrated exhibitor of Ayrshire cattle. He certainly told Mr. M'Culloch about the false horns before the other had time to discover them. "He took me aside, and said the first-prize bull had a pair of false horns on;" and "I had a conversation with Paton about the inflation of both bulls, and it was after this he made the deduction in the price." Then, says Lord Neaves, in his address to the jury, they will have to decide *first*—whether the artificial horns were put on and the bulls inflated, and whether Paton did it, or knew of it. Considering that the purchaser pulled the horns off, and the exhibitor confessed they had been put on—that the punctured wounds were sworn to, and one animal as decisively declared by the judges to have been inflated when brought before them—the intelligent jury could have had little to bother them over this point. *Secondly*, continues his lordship, whether Paton intended to deceive. At any rate he took M'Culloch *aside*, instead of declaring publicly the bull to have false horns. Surely the acute jurymen could not have much to discuss here. *Thirdly*—did he succeed in deceiving? In answer to this, one of the judges swears that he should not have given the bull the prize had he known the animal had false horns. Another, had he discovered it, would have reported the case to the committee. Again must the intelligent gentlemen of the jury have had no great difficulty to determine. *Fourthly*, was it in consequence of these deceptions the prizes were awarded to the animals? We have here but the same reply. One of those who awarded these prizes would not have done so had he known the bull had false horns; and another, had he seen the bull in its natural state, would not have given it the first prize. By all this evidence "it was the duty of the jury to discover whether the prisoner was guilty of the particular crime charged against him in the indictment." And in twenty minutes—it took them actually no longer—this model panel arrived at their grand discovery; and came back into court, conscientious and unanimous, with that famous Scotch edict, "Not proven."

Mr. Paton told the purchaser the bull had false horns on, but the jury could not say he knew it; and so *not proven*. Mr. Paton told no one of these false horns but the buyer of the bull, and not then till after the purchase was made, and so, of course, he could not mean to deceive any one—decidedly, *not proven*, again. Either intentionally or unintentionally he could not have succeeded in deceiving any one, because the judges would not have awarded the prizes had they known of these horns—clearly, *not proven*. And any such deceptions could have had nothing whatever to do with obtaining the premiums, simply because the judges say they had—most unquestionably and distinctly—most unanimously, "*not proven*." And the prisoner leaves the bar "without the slightest stain on his character." And we glory, as Britons should do, over that great national right, trial by jury. And we ponder well over those mystic words "not proven." And we question no longer the Oracle of old, which gave forth its edicts in phraseology so peculiar and so puzzling.

However groundless the charge may have been against Mr. Paton, we cannot altogether regret that the Ayrshire Agricultural Association should have proceeded thus far with the inquiry. In the first place, the verdict of this unanimous and intelligent jury clears the reputation of a much-injured man; and in the next, the summing up of the judge warns us that such practices cannot be indulged in with impunity. Lord Neaves himself unmistakeably regards them as indictable offences, while he adds it was "conduct no honourable or honest man would be guilty of." Most probably we shall now never know who was the offender in this case—who it was that actually took the bull by the horns—but that he will travel down to posterity with our other great secrets—the Man in the Iron Mask, the death of Eliza Grimwood, and the author of Junius' letters. It will be, though, a question hereafter, for the serious consideration of our agricultural societies, whether an exhibitor shall not be liable for the acts of his servants—Qui facit per alium facit per se. Somebody or other must have blown out, and touched up the head-pieces of the Ayrshire cattle. The jury assure us it could not have been Mr. Paton. Possibly, then, it was some enthusiastic cowman, who with less delicacy than his master was determined to win on any terms. The danger he ran must be a warning to others. Let employers be especially careful that their names are not associated with "conduct no honourable or honest man would be guilty of." In other words, let animals, as we have so often urged, be exhibited only in fair condition. The offence is, after all, but one of degree. We have sheep still clipped into shape, although the Rules of nearly all our Agricultural Societies specify that they should not be thus prepared. We have pigs over-fed to an extent as injurious as absurd; and we have seen horses tortured as low dealers treat them in a fair, so that they should carry their tails well when they went before the judges. The latter have, perhaps, stricter duties to perform. Let them far more frequently than they have done condemn animals whose "preparation" is only an insult to their experience, and ability for the office they have accepted.

Perhaps the most curious commentary on this case is the formal protest of a Suffolk agriculturist, whose letter is given in another part of our paper. He actually objects to the finding of the Ayrshire jury, assuming, on the evidence we have published, that the animals had been tampered with, and that Mr. Paton knew something about it. We cannot of course prevent our readers forming their own opinions, but the great deduction will have to be drawn by the Committee of the Ayrshire Agricultural Association. Will they now pay over the premiums to a gentleman so satisfactorily "not proven" to have done anything wrong? We shall watch their proceedings with some interest.

CORN AVERAGES.—MICHAELMAS RENTS.

Sir,—The return of Michaelmas, which may be considered the termination of the farmer's year, induces me to send you the result of the average prices of wheat, barley, and oats, for fifty-two weeks ending on the 25th of September, 1858, viz. :—

Wheat............46s. 10¼d. per imperial quarter.
Barley............36s. 0¼d. „
Oats..............24s. 11¾d. „

For the information of your agricultural readers I annex the weekly averages from the *London Gazette.* It will be seen that the highest price for wheat during the year was 56s. 3¾d. per imperial quarter for the week ending the 3rd of October, 1857, and the lowest price was 42s. 6d. for the week ending the 28th of August, 1858, being a difference of 13s. 9¾d. per imperial quarter, or very nearly 25 per cent.

I remain, sir, your obedient servant,
CHARLES M. WILLICH,
Actuary, University Life Assurance Society.
25, Suffolk-street, Pall-mall, S.W., Oct. 10.

WEEKLY AVERAGE PRICES OF WHEAT, BARLEY, AND OATS IN ENGLAND AND WALES FOR FIFTY-TWO WEEKS, ENDING THE 25TH OF SEPTEMBER, 1858.
(From the *London Gazette.*)

	Wheat.		Barley.		Oats.	
	s.	d.	s.	d.	s.	d.
October 9, 1857..	56	3·726	43	4.817	27	0·229
„ 16 „ ..	55	8·979	43	0.657	25	6·884
„ 23 „ ..	55	10·801	43	0.872	25	6·319
„ 30 „ ..	55	6.971	43	5·991	25	3·096
Nov. 6 „ ..	53	11·645	43	1·090	25	0·965
„ 13 „ ..	52	6·314	42	3·176	26	4·148
„ 20 „ ..	51	8·876	41	3·487	25	3·447
„ 27 „ ..	51	3·527	39	10·066	24	1·550
Dec. 4 „ ..	49	8·154	37	7·179	23	10·064
„ 11 „ ..	48	3·913	35	9·824	23	0·352
„ 18 „ ..	49	5·408	36	5·330	23	3·704
„ 25 „ ..	49	3·694	37	0·894	22	8·789
January 1, 1858..	47	5·758	35	11·915	23	2·717
„ 8 „ ..	47	7·882	36	6·575	22	3·424
„ 15 „ ..	47	10·765	36	3·985	22	8·057
„ 22 „ ..	48	8·451	37	0.637	22	1·596
„ 29 „ ..	48	9·845	37	6·838	22	4·480
Feb. 5 „ ..	47	6·940	37	1·166	23	1·926
„ 12 „ ..	46	9·337	36	8·262	23	0·718
„ 19 „ ..	45	8·896	36	3·917	22	8·089
„ 26 „ ..	44	6·449	35	9·159	22	10·484
March 5 „ ..	45	0·375	35	11·227	22	4·719
„ 12 „ ..	45	6·149	36	7·289	23	4·271
„ 19 „ ..	45	3·390	36	6·920	23	3·968
„ 26 „ ..	45	6·654	36	9·511	23	4·510
April 2 „ ..	45	2·398	37	3·507	23	4·724
„ 9 „ ..	44	3·382	36	10·520	23	5·420
„ 16 „ ..	43	1·791	36	3·710	24	1·618
„ 23 „ ..	43	2·735	36	7·750	24	7.925
„ 30 „ ..	44	9·048	36	5·998	24	9·255
May 7 „ ..	44	5·347	36	1·508	25	4·895
„ 14 „ ..	44	2·387	35	5·501	25	7·686
„ 21 „ ..	44	11·103	35	0·630	25	8·679
„ 28 „ ..	44	6.496	34	9·371	26	1·696
June 4 „ ..	44	8·182	34	3·270	26	2·153
„ 11 „ ..	44	9·860	33	7·971	26	5·585
„ 18 „ ..	44	7·641	33	5·548	26	0·678
„ 25 „ ..	43	10·025	30	7·712	26	10·088
July 2 „ ..	43	0·348	31	1·572	25	10·091
„ 9 „ ..	42	8·822	30	8·467	25	11·915
„ 16 „ ..	43	4·486	29	11·829	26	3·856
„ 23 „ ..	45	3·193	30	4·246	26	5·248
„ 30 „ ..	46	4·839	29	9·511	27	11·601
August 6 „ ..	45	8·746	30	6·165	28	5·864
„ 13 „ ..	44	10·590	31	3·039	27	6·005
„ 20 „ ..	45	2·306	31	3·319	28	3·727
„ 27 „ ..	45	1·957	33	7·859	27	9·666
Sept. 3 „ ..	42	6·167	34	6·080	27	10·121
„ 10 „ ..	45	3·024	34	0·679	27	3·289
„ 17 „ ..	45	1·981	35	2·030	25	7·967
„ 24 „ ..	44	11·408	36	1·132	25	8·336
October 1 „ ..	44	2.618	36	6·315	25	1·532
52)	2,436	11·779	1,873	10·023	1,299	2·126
	46	10·380	36	0·423	24	11·810

CONSUMING OF ROOT CROPS.

My agricultural creed has never believed any benefit from the drilling of grain crops, from cutting or slicing turnips to be eaten by cattle and sheep, or from cutting hay and straw into chaff as provender for horses and cattle. When cut in chaff and steamed, the latter articles are still hay and straw, and the impregnation with volatilized water merely adds moisture to the culms, which may as well be applied by the common process of drinking. The chewing of the food is lessened in the production of saliva, that is so very necessary to the action of the stomach in the process of assimilation and digestion. Animals are constituted by nature to eat vegetables as they grow, and even an apple when bitten by the human mouth is better in taste and flavour than when sliced by a knife. The jaws are most agreeably employed, and there is no opportunity of escape of the volatile juices. The natural qualities are directly applied without exposure to the air.

The slicing of turnips for cattle and sheep was an emanation from the Holkham school, or was much recommended by the enthusiasm that prevailed there in every practical adoption. Much time is required to sober down such high-flown theories, of which the value is never ascertained till time and circumstances have cooled the enthusiasm of its votaries into a sober sense and a sound discretion. A very considerable experience is incurred in stemming the turnips on the fields where grown, and in cutting and placing them in troughs in sliced roots, to be eaten by the sheep, of which a very candid statement appeared in this paper some two or three weeks ago. The sheep eat the food from troughs placed outside a fence, which is removed backwards as the heaps of roots are consumed, the sheep lying and roaming over the consumed ground. Or the animals may be folded in lairs of two nights in a regular succession on the emptied ground, and thus give the land an even benefit of the dung and urine that are voided. Only on dry lands, and under benign climates can this mode be adopted, such as are found in South Britain, which is reckoned from a line cutting across the kingdom at York. Over the North of England and the South of Scotland the climate is boisterous, snows lie long on the ground, and frosts are permanent and severe, rendering it essential that the sheep have liberty to run for shelter to any protection of the fence and its corners. The land is benefited by the trampling of the animal's feet, and by the excrements voided during the travels, and in eating the plot of turnips allowed in use during two or three days. This mode has shown little or no inferiority to folding, and is less in cost. The two methods differ little, and are applied to mild climates, and moderately severe experience.

On all dry turnip soils of an inferior quality, sands, chalks, gravels, light loams, and earths, the whole crop of turnips is required to be consumed on the ground, which is done by running a fence of nets, or flakes, or hurdles across the field, with a cross-bend at which the allotted space of fresh turnips is given to the sheep. These lands under benign climates are folded over by the sheep as has been mentioned, and the benefit is derived from the nightly lairs and from the daily roamings of the animals. On the greater part of turnip lands, the quality allows and economy demands the removal of half the crop, to be consumed by cattle in the straw yards. The roots of the bulbs to which earth and dung adhere are cut away by hand-sickle, and fall to the ground: the tops are cut off, placed in heaps, and carried to young cattle in the yards, or to store sheep on grass or stubble ground. The half of the crop of turnips left on the land are consumed by sheep folded nightly on the ground, or roaming at large, as the climate may allow.

Many best lands of this description are not fitted for being trampled by sheep, by reason of a poachy wetness of the soil during thaws and rains. In these cases the turnips are carted to an adjoining field of grass or stubble, the roots cut away, but not the tops, and being thinly and regularly spread over the surface two days, are eaten at leisure by the sheep, that wander over the field, and rest at pleasure. An equal benefit is conferred on the land as if consumed on the field of growth, only on different grounds.

The sheep delights to exercise its jaws in excavating a bulb of turnips, beet, or cabbages, with the head sunk to the eyes in the fleshy mass, by which action much saliva is engendered, and the material juices are enjoyed from the fountain head. One-year sheep are assisted in breaking the bulbs by some old animals being mixed in the flock, whose teeth are strong for the purpose. When the bulbs are eaten into a shell, the remnants, if worth the labour, are picked up by hand-tool, and further eaten by the sheep, and the roots remain in the ground, the bulb being wholly consumed, and benefit the land by keeping it open and divided by the tap-root, till the land is ploughed. The small remnants of shells, if reckoned waste, are not greater than the refuse of sliced turnips found in the bottoms of the troughs, and a small waste may be unavoidable in either way. The animals are pleased to nibble the shells, which most frequently are wholly consumed.

There are thus avoided the prime cost of turnip-cutters and of troughs, and the labour of slicing the bulbs; and experience has shown that sheep are equally as well and as quickly fattened by the modes above described, and the land is equally benefited. On very dry lands, under benign climates, the animals are folded over the consumed ground in lairs of two nights, and are provided with a space of fresh turnips for every two days, which they eat at pleasure; on wetter soils, under more boisterous climates, the animals lie in shelter, and eat the half of the turnip crop as before, not being folded; in the third way, the turnips are carted to a grass or stubble field, and eaten at pleasure, the succeeding crop of oats or of roots receiving the benefit of the excrements voided by the sheep, and of the trampling by the hoofs.

But roots dressed clean from tops and fibres are used uncooked for milch cows, store cattle, and fattening animals, placed in troughs, and given in quantity as can be consumed without waste. The tops are beneficially applied to store cattle and pigs, in the yard, and to store sheep on any pasture or stubble ground. Cabbages, preserved in store pits, piled as cannon balls, and denuded of the outside leaves, are excellent food for milch cows in the spring months, and most especially for ewes in the early lambing. No slicing is required, but allow the animals to nick the head to the eyes in a cabbage bulb, and serve itself from the fountain head. Juicy food being essential at that season of the year, cabbages are highly valuable. Potatoes, raw, are given to store cattle and pigs in the yards; steamed and mixed with meals for fattening bacon hogs; raw to work-horses at any time; steamed in a meal in the evening, best in the spring months; steamed and mixed with meals, and given to poultry in troughs. The application of roots in the raw condition may be the most valuable, avoiding the expense of preparation, and producing a result at the least cost.

J. D.

ADORNING AND BEAUTIFYING FARMERS' HOMES.

The *Genesee Farmer* says: Our offer of a prize for the best essay in answer to the question, "Should Farmers adorn and beautify their Homes and Farms before they become wealthy? and if so, how may it be done in the easiest manner?" has called out answers from a great number of esteemed correspondents, and we believe a few extracts from some of them will prove interesting to our readers:—

Martin S. Gregg, of Fayetteville, Arkansas, writes that he is in favour of adorning the house before the farmer becomes wealthy. He says:—

"I am poor, and any one can do as I have done. I have taken from our native forests some fine trees and flowers, which cost me nothing but a little labour. To these I added a few imported trees and flowers. *And now my farm will command twice as much money as it would without these adornments.*"

* * *

"To neglect home attractions, to forego internal conveniences, and those external adornments which a just appreciation of the beautiful would dictate, until our pockets are lined with superfluous wealth, and many years and cares are weighing heavily upon us, is like refusing to eat until our granary and larder are overflowing with husbanded stores, and our wasted frames admonish us of our imprudence.

"With the many, a reasonable degree of comfort is accounted as everything, and beauty nothing. Such persons have no idea of the potency of influences. The tastes and characters of our children, and the subsequent happiness consequent upon the exercise of those tastes and the development of those characters, are greatly dependent upon the externals and internals of the home of their childhood.

"In the construction of their homes, farmers are apt to act with too little premeditation and thought. He who would built him a home, can never invest money so well as to purchase and study some reliable work on rural architecture. He will there learn that even a cheap house can be so constructed as to combine internal convenience of arrangement with exterior beauty and attractiveness. He who would adorn his grounds and beautify his home, should read some work on landscape gardening, and regularly and continuously some good agricultural and horticultural journals. Thus he will place himself in communion with persons of cultivated and refined tastes, and thereby be enabled to act with more judgment, and with far more satisfactory results. Each year should add new attractions to the surroundings of home, developing new beauties: thus our children will grow up with a strong attachment to the homes of their childhood.

"This work of beautifying our homes is easiest done, where the work commences with the commencement of agricultural improvement, and is conducted with good taste and an enlightened judgment."—O. C. G., *Frewsbury, N. Y.*

* * *

"If the farmer has sons and daughters, and wishes them to grow up farmers and farmers' wives—loving himself, their own old homestead, and a farmer's life—there must be something more than mere out-door labour, and the freedom of healthy exercise, to engage their hearts; the farm dwelling and all its appendages must be pleasant and attractive—a place that they can ever remember and love, not only as the home of their youth, but as a beautiful place. If this is done constantly while they are growing up, he will not so often have occasion to lament that his sons are dissatisfied with the occupation of their father, and seek something more congenial."

"A good farm is worth beautifying, and should appear as well as it really is; but it is in very bad taste to see the exterior of anything nicer than the interior: it reminds one of the dandy parading Broadway. Let the house be a rural home, appropriate to its position, surrounded with shade trees, for the two-fold purpose of greatly adding to the comfort of its occupants and the beauty of the place. Spare for a grove on the highway those trees most sound and thrifty, and one here and there over the pasture lands; it will give the farm a more natural appearance, and it will not present so barren an aspect; and the panting ox and sheep, reclining beneath its refreshing shade, will return a look of gratitude. Fences should be constructed with a view first to permanency, and their adaptedness to the wants of the field, and then built neatly as well as substantially—strait as possible, every board of its proper size and in its proper place—the posts perpendicular, and not one peering over its fellows. The farmer need not be afraid of paint; it gives durability as well as beauty to his buildings and farm implements. It is an agreeable sight, as well as economy, to have "a place for everything and everything in its place," and a bad sign to find the farming utensils scattered over the farm where last used. In a barn, utility, convenience, and adaptation to the wants of domestic animals, are essential.

"Let the exterior of the dwelling look as well as the interior, for we lose nothing by endeavouring to procure the favour of others. Adorn the inside with a library of works, whether treating of agriculture, science, art, or religion, the tendency of which is to lift a man up, intellectually and morally, and place him where he was designed to be, 'a little lower than the angels.'

"There are, we might say in truth, a thousand ways in which a farmer's home may be beautified; but it is a fact that everything looks well that is appropriate to its peculiar place and work. Fine horses, cattle and sheep—*i. e.*, in good condition—do most towards adorning a farmer's barn-yard; fine crops the field; a fine farmer and wife the whole. Such a farmer, if he ever has the good fortune to be called wealthy, will be so in a threefold sense—in possessions, in mind, and in heart." S. E. P.

"Should farmers adorn and beautify their farms and homes before they become wealthy? Yes. There are many reasons for answering thus. Many of them may never become—in the popular sense of the term—wealthy; and should they forego the pleasure all their lives of having a pleasant home? We live and labour too much as though riches were the height of enjoyment, when in fact it is not so: the choicest blessings are free to all. It seems hardly possible for a man to be truly wealthy without a pleasant home. 'Delays are dangerous.' Let a farmer turn his whole attention to becoming wealthy, making it the all-engrossing topic, bending everything to accomplish it, and training his family to that as the matter of greatest moment in this world, teaching them that first of all they must become rich, and then they may plant trees and flowers—who will tell him when he is rich? In all probability his family—those who should have been taught to sympathize with nature—will have grown up selfish and cold-hearted, and been scattered, before the man will have found out that he is able to make his home an attractive spot. How often have we seen a costly mansion with nothing cheerful or inviting around it—nothing to tell us that *one* of its inmates has a single pulsation in unison with the beautiful and lovely things of nature! And we have seen the cabin, with that tasteful arrangement around it which has led us to feel that although its inmates were not rich in gold and silver, they had that which was far better—gentle dispositions and cultivated and refined sensibilities. It seems to me that no child of crime could proceed from a cheerful and beautiful home.

"How may it be done in the easiest manner? 'Order is nature's first law.' Have regular fields and tidy fences. Build nothing but what can be finished in a neat and substantial manner; a small house in good repair is better and prettier than a large one going to ruin. Take from the woods the sugar maple, the ash, the hickory and butternut; plant small groves in the pasture and an occasional tree in the meadow, and a row on the street. Your neighbours have flowers of various kinds, and will be glad to give or exchange. *Observe:* Our tastes are not all alike; it is a good thing they are not, for thus we have variety. We must each set about it, and cultivate our own.—ONE OF THE BOYS; *Arrowsmith's, Defiance Co., Ohio.*"

"The planting of ornamental trees should be attended to among the first operations of adorning the home. Of these, evergreens deserve the first place. Their fresh green foliage during winter, when all other vegetation lies dormant, gives them the preference over all other ornamental trees. But for variety, deciduous trees should also be planted. Most kinds of fruit trees are good for ornamental planting, especially when dwarfed. There are two seasons at which they are particularly ornamental, namely, when in bloom and when ripening their load of fruit. In addition to this, their profitableness will soon repay the cultivator for his care and expense. But every one must be his own judge in the kinds of trees he selects. A variety of small flowering shrubs, such as roses, snowdrops, &c., is another necessary ingredient in beautifying a home. Again, the spot desinged for a lawn or yard should be carefully cleared of all rubbish, and as smooth a surface as possible imparted to it, and a good coat of green grass secured. Gardening should also be attended to with neatness and care.

"These, and nearly all other operations essentially necessary to ornamenting the home, can be done with very little cost during the spare moments which farmers can have, if they properly economize their time. Beautifying and adorning the farm is rather a more extensive task, but with care and perseverance may be easily accomplished. Next to the beautiful homestead, the orchard is the greatest ornament to, as well as the most profitable part of the farm. Probably the easiest way to beautify a farm is to have the various kinds of fruit trees planted and arranged with neatness; shade trees and groves planted in such places as they are needed, and where they will present an attractive appearance; to lay off the fields in convenient, regular, and symmetrical forms; keep the fences, &c., in a good state of repair; keep down the growth of bushes and briers; keep the fields, not occupied with grain, in clover, or some other green crop—and let neatness and order have pretty full sway.—W. H. M. *Mahoning, Pa.*"

"Probably 'the easiest manner' in which a farmer may 'adorn and beautify' his home and farm is by the judicious *skilful* planting of trees, vines, and shrubbery. I might qualify by adding either, or both useful and ornamental: but, to my mind, that which is truly beautiful is always useful, although its utility may not be measured by dollars and cents."

"I answer the first question decidedly in the affirmative, and *now* is the time to do it. How? I answer, by setting out trees. Keep your house well boarded and shingled, and painted a dark brown or chocolate colour, as being the cheapest and most durable. Keep your barn tight, warm, well lighted with windows, and don't forget to have ventilating chimneys, reaching from each separate stable out at the top of the barn. Wash your barns and sheds with blue lime, adding some brown pigment to correspond with your house. Then take the extra expense that German lead would cost and lay it out in trees. There is nothing so beautiful as a brown-coloured house seen through a clump of trees. If you cannot get trees any other way, run in debt for them. Apple, pear, plum, or maple trees will pay for themselves in a few years, with all the interest on the outlay. —H. Stearns, *Felchville, Vt.*"

"In locating a house, follow convenience and economy; and still I would in no case put the woodhouse in front, nor the house behind the barn. In building, remember that there are two sides to a house—the inside for yourself and family, and the outside for other folks; and the golden rule does not require you to do *more* for others than you would, or can do, for yourself. Depend upon it, your friends will admire your inside comforts rather than your outside show."

IRISH AGRICULTURE.

An adjourned sectional meeting of the members of the Royal Dublin Society was held at the Society-house, Kildare-street, on the 4th of June last. Mr. James Haughton presided.

Mr. Thomas Miller read a paper on Irish agriculture, of which the following is a summary:

Mr. Miller stated that in visiting, in the years 1847 and 1850, the provinces of Ulster, Leinster, and Connaught, he was much impressed by the scenery and the natural fertility of the soil, which was, however, worn out by the bad husbandry of the small farmers. The famine and pestilence had committed terrible ravages on the people; the poor-houses were filled with the attenuated skeletons of the living, and the graveyards with the corpses of the dead. The poor-rates were often higher than the rent-rolls of the estates. Estates were hurriedly, and often mercilessly, thrown into the Encumbered Estates Court, and sold; and many families of rank and respectability were reduced to poverty. For mile after mile, in traversing the country, hardly a human being was to be seen, but here and there the cottages of the caretakers of the depopulated estates. Even the very ground partook of the sadness which pervaded the country; and the land was humbled under the judgments of the Almighty. At this period many farms, from the foregoing causes, were in the hands of the proprietors. Emigration had also begun, and added more farms to those already in the landlords' hands. The prospect of agriculturists, at this period, was very different in Great Britain. Farms there were letting freely, at enhanced rents—indeed, for more than double the rents of Irish farms; and properties brought greatly more than twice the price of Irish properties. Knowing these facts, he thought he might do some good to Ireland, if he could induce English and Scotch capitalists to buy lands, but more especially if he could induce English and Scotch farmers to settle in Ireland, where, by their intelligence, industry, and agricultural ability, they would not only show an example to Irish farmers, but also greatly benefit themselves. With these objects in view, he put himself in communication with a number of the Irish nobility and gentry; and many fine farms were placed in his hands, to let to Scotch and English farmers. The Commissioners of the Encumbered Estates Court also authorized the rentals and particulars of estates for sale in that court to lie at his Edinburgh office; so that parties in Scotland, who might be inclined to purchase Irish properties, might see the rentals. He spread information through Scotland and England by advertisements, and circulating gratuitously lists of properties for sale, and farms to be let in Ireland, and opened an office in Dublin, in connexion with his Edinburgh establishment. A number of properties had been bought by him for English and Scotch gentlemen; and a great many Scotch and English farmers had taken farms, through his agency, in most parts of Ireland. About 900 Scotchmen and Englishmen had come, through his offices, to Ireland, in one year, to look for land. Many of these were accompanied by friends; and, whether they took farms or not, all returned impressed with the fertility of the soil, the mildness of the climate, and the low scale at which they could lease land. There were, however, anterior to this period, a number of first-rate Scotch and English farmers, agents, and agriculturists settled in Ireland—men of great intelligence and ability, who had done much to improve the country; and it was gratifying to him to acknowledge the interest they had taken in his operations. It was, however, since the famine years that the great influx of Scotch farmers had taken place. The Irish landlords, as a body, had given them every encouragement. One great desire of Scotch farmers, in addition to getting good land, was to be near to Scotch churches, where they might attend the worship of God as in their own happy country, and to be in the vicinity of good schools for their children. Mr. Miller exhibited maps of Ireland, showing the localities in which native-born Scotchmen and Englishmen are settled in Ireland, as proprietors, agents, farmers, or head stewards, and which were prepared from personal inquiry, and correspondence with upwards of 700 Scotchmen and Englishmen settled agriculturally in every county in Ireland.

The number of Scotchmen and Englishmen so settled, appears to be		756
Of whom there are—		
Natives of Scotland	660	
Natives of England	96	

Showing that there are seven Scotchmen engaged in agricultural pursuits, in Ireland, to one Englishman. He stated that he was personally khown to most of them, and in correspondence with nearly all of them. Most of the English and Scotch farmers had brought over one or more experienced farm-servants; and, as most of these and their masters were married, and had families, the number of Scotch and English agriculturists and their families must amount to about four thousand persons. There is a constant correspondence and intercourse going on between Scotchmen in Ireland and their friends in Scotland; and there had been spread through the length and breadth of Scotland a thorough knowledge of Ireland; and very favourable was the Scotch opinion of Ireland and its people. Scotch farmers had unhesitatingly placed themselves on every part of the Irish soil; and their number was daily increasing. He stated that it could not but attract attention, that there was only one English farmer to seven Scotch ones; but this undoubtedly arose from prejudice and the want of correct information in England. Believing that the best way of bringing the state of Ireland before Englishmen and Scotchmen was to have the opinions of their countrymen who resided in Ireland, he sent out a circular to their countrymen who had settled agriculturally in Ireland, asking them to furnish him, among other matters, with the result of their personal experience of the climate, soil, capabilities of the land, crops, stock, and to state how they liked the country and general behaviour of the people to them. To this circular he had received about 170 replies, all of which, with the exception of eight or nine, were most favourable to the country, the peasantry, and the general demeanour of the people; and from this information, his own inquiries, and personal experience and observations during many journeys through nearly every part of the kingdom, this paper had been drawn up, and is thus furnished entirely by Englishmen and Scotchmen, and therefore ought to be thoroughly credited in England. Few Scotch or English farmers have settled in Ulster, the principal reason of which is the Ulster tenant-right, which is repugnant to all their previous experience. Farms in Ulster are generally let at a fair rent, but it is next to an impossibility for any new party to get a farm without paying the out-going tenant an enormous sum for his so-called right. On an average, tenant-right is generally sold for £10 to £15 per acre. The right to a farm of 50 acres is sold, say for £500, which is paid by the new tenant to the outgoing one, who thus puts that sum in his pocket, while the new one enters into the farm with £500 less capital than he otherwise would have had, and often thus goes in a poor man, having spent in the purchase of his tenant-right the money which should have stocked and carried on the business of the farm, while the outgoing tenant is comparatively rich. There are some excellent Scotch agriculturists in Ulster superintending the improvements on the estates of some of the nobility and gentry. In the province of Connaught there are many Scotchmen, especially about Sligo, Ballina, Newport, Westport, Hollymount, Tuam, and Ballinasloe. Some of them have purchased lands, and many more not only farm largely, but are hard-working practical farmers. Foremost of all, as proprietor and improver, stands Mr. Allan Pollok, the extent of whose purchases in the county of Galway are unrivalled, while the improvements he has made on his properties are the admiration and wonder of the whole country. Himself the heir of an ancient Scottish family, and the owner of other large estates, he was well known as a first-rate agriculturist, and for the improvements effected on his estates. As he has been by far the largest purchaser of Irish properties in the Encumbered Estates Court, so he has spared no expense in their improvement. Plans skilfully matured have been carried out with great vigour; thousands of labourers have been employed, and an example shown of what can be effected on the Irish soil by an outlay of capital, directed by skill, prudence, and energy. As Mr. Miller purchased for Mr. Pollok nearly the whole of his large properties, he thought it only right to state thus much, and that Mr. Pollok, who is now letting his improved farms well, deserves the approbation of the country. Near Tuam are some English yeomen, settled on small properties bought by them. From Belmullet to the Killeries, on the Mayo coast, are some Scotchmen, who farm very extensively, and stewards having charge of large properties. West Highland, Kyloes, and Cheviot sheep have been introduced with advantage: the latter is a larger and finer animal than those in its native country. There is a great want of local markets in this district of Mayo, for while oats are always saleable, fat sheep and stall-fed cattle are often unsaleable; and the whole of Connaught is sadly deficient in railway accommodation. The Midland Great Western Railway only supplies a very small portion of the southern part of the province, while to the east the nearest railway stations are at Longford, Cavan, and Enniskillen. This is a serious evil, and has retarded the development of the province. It is in the province of Leinster where the greatest number of Scotch farmers are located. There are numbers of them in Louth, Longford, Meath, Dublin, Westmeath, Wicklow, Wexford, Carlow, Kilkenny, King's and Queen's Counties; but it is in Kildare where the largest groups are located. There are almost forty Scotch farmers in the vicinity of Athy, the country round which now looks like a well-cultivated Scotch district. In the province of Munster there are many Scotch and English farmers and proprietors, agents and agriculturists—not a few in Kerry and Waterford, but many more in Clare, Limerick, Cork, and Tipperary. The golden vale stretching through part of Tipperary and Limerick is the richest grazing land in the kingdom. The provinces of Leinster, Munster, and Ulster, are well circumstanced as to railway communication. When the lines to Donaghadee on the one side of the channel, and to Portpatrick on the other, are finished, passages between Edinburgh and Glasgow, and Dublin may be made in ten or twelve hours, while at present it takes twenty-two hours between the time of posting a letter in Dublin to its delivery in Edinburgh, viâ Holyhead. The detention of the mails at Belfast is disgraceful to the country. The influence which the example of 700 to 800 intelligent Scotch and English farmers have had in promoting the agricultural improvement of the country can hardly be over-estimated. Their farms are generally recognized by the intelligent traveller. They have given a stimulus to all agricultural operations. Landlords and Irish farmers have been equally desirous of seeing these operations. In one district a Scotch gentleman, who is also an excellent agriculturist, took a large farm, and had an excellent crop of turnips the first year. In that locality it was not believed that a turnip could be grown much larger than a potato, and it was often impossible to see the crop from the luxuriance of the weeds which hid them. Irish farmers, and even some landlords, came from the surrounding district to see the crop, and were astonished at the bulk of it, as well as the mode of culture; and the example of good husbandry thus shown has been largely followed. In another county an intelligent Scotch farmer took a large farm, the soil of which was very deep, but the surface exhausted. The Irish farmers never ploughed deeper than five inches. This gentleman went deep into the soil, turning over a furrow of ten to fourteen inches. He only used three cwt. of Peruvian guano to the Irish acre for his turnip crop, and the produce was the largest and the heaviest in the county. Here was another example not only of large crops, but of the cheap and simple method of renovating, by deep ploughing, the worn-out lands. Sometimes the people would say, "Well, the ground produces these fine crops to you Scotchmen, but it will not do so to us." But the examples shown have been taken, and marked improvements have taken place. Large quantities of Peruvian guano, crushed bones, biphosphate of lime, and artificial manures are now being used, and have found their way into the most remote districts. There are, however, still some remaining drawbacks to the settlement of Scotch and English farmers, which time can only remove, for many of the Irish landlords have not placed themselves in the same intelligent position to their tenants as the English and Scotch proprietors have done. In Great Britain the landed gentry, at their own expense, erect proper dwelling-houses and farm offices, enclose, fence, and drain the lands: they exercise great care in the selection of a tenant, and he enters into a farm ready for his commencing operations. In Scotland, if the house, offices, or farm be in bad repair, the law gives the new tenant a very summary mode of compelling the landlord to put them into order; but the tenant must keep them in good repair during the currency of the lease, and the proprietor has ample and easy means of enforcing this. Now, though many of the Irish landlords have done all a tenant could desire, yet such is not the general rule. The house is frequently far too large, fitted for a nobleman or gentleman's family, or it contains only two or three apartments, or there is no house at all. The offices are equally bad, and the fences are most likely bad. Now this should not be the case. A fine or sum of money paid down is often exacted from the new tenant. If Ulster tenant-right be repugnant to British farmers, so the laying out of money in the building or repairs of houses and offices, and payment of fines, are equally opposed to all their ideas of the proper modes of dealing between landlord and tenant. It is unwise for proprietors to take the capital from their tenants, which ought to go to stock, and crop, and carry on the business of the farm, and force them to employ this capital for purposes for which they themselves ought to find the money. The taking of a fine has a tendency to induce the Irish farmer not to be so careful of his landlord's interests as he ought to be, but to take as much as he can out of the land. No class of society, however, have suffered more from their tenantry than the Irish landlords, nor have been more unjustly maligned than they for their treatment of their tenants. But as a body they have treated them with the greatest kindness and forbearance, and have often submitted to claims which it could never enter into the minds of British tenants to make, and which, if made, would have been indignantly spurned by English and Scotch landlords. Happily, this state of matters has passed away. Not only are rents fully paid up, but nearly every tenant is possessed of money. The tendency all over the country is onward in the march of improvement. Small farms are yearly decreasing in number, the total diminution of them between 1841 and 1856 being 98,625. As the number of the smaller holdings diminish, and the number of the larger ones increase, better culture will follow. Useless fences and ditches will be rooted out and fields enlarged; better houses and offices be built, and improved husbandry follow. Scotland was formerly as badly farmed as Ireland. There was the in-field and the out-field. The in-field was enclosed, and on it was the homestead; the out-field generally lay at some distance, and was unenclosed, and the cattle and sheep which grazed on it were herded. Small farms and small fields were abundant. What a contrast does Scotland now present! Every field enclosed, and good substantial houses and offices, and steam-engines. The small farms have been consolidated, and the whole country has an improved appearance. Scotland owes much to the Highland Agricultural Society and the patriotic exertions of the nobility and gentry of the country, and the intelligence, and skill, and untiring industry of her farmers, who have made their country stand foremost amongst the nations for agricultural improvement. The Royal Dublin Society and the Royal Agricultural Improvement Society of Ireland are doing much for the country, by introducing the best husbandry and the most improved breeds of cattle. The annual shows of each, as well in Dublin as in the provinces, bring together the purest breeds from all parts of the United Kingdom; and so great has been the patriotic emulation among the nobility, gentry, and farmers to possess the finest stock, that Irish shorthorned cattle are not inferior to the best in Great Britain. Mr. Miller stated that he had been assured by one of the first judges of stock in England, that the British farmers may soon be obliged to look to Ireland for the finest animals to improve their stock. The implement-makers who attend these shows now sell large numbers of their most improved machines; a sure sign of the great progress of tillage husbandry. At the Dublin Society's show it is not uncommon to see prizes awarded for crops of Swedish turnips of 60 tons per acre, mangel wurzel of different varieties from 50 to 80 tons per acre, and field carrots from 50 to 60 tons per acre. The Royal Irish Agricultural Improvement Society has also roused a spirit of improvement through the country, by the encouragement it has given to the promotion of local societies. The high prices given for all kinds of stock, as well as for green and other crops, have given an additional impetus to agricultural pursuits. The Registrar-General states that, since 1851, there has been a probable reduction in the number of the people of 539,282; and that the probable population of Ireland is now 6,013,103. This reduction of the population has undoubtedly contributed to reduce the small holdings, as well as to raise the rates of labour.

The English and Scotch proprietors and farmers have greatly aided in improving the condition of the poor Irish labourers. Sixpence and eightpence a day were the former wages; and if a mud cabin and a bit of potato ground were added, a very high rent was charged, and he was generally bound, at these scanty wages, to give three days' work a week to his master. Patient, though thus crushed down, it is difficult to conceive how he and his family could subsist. Scotch and English farmers saw that no man could give a day's work on such poor wages, and 10d. to 1s. 3d. a day may now be about the average rates of labour. So sensible are the poor men of the benefits conferred upon them by British farmers, that when a farm was to be let, their great desire was that it might be taken by a Scotch or English farmer, for then they would be sure of good employment and regularly-paid wages. The young Irish lads are very easily taught, and make capital ploughmen, and nothing delights them more than getting charge of a pair of horses. The labourer has few additional comforts; but there is now an almost total absence of rags, and he is generally respectably clothed. Another instance of Ireland's prosperity is the remarkable decrease in the number of paupers, and consequently in the poor rates, both of them being less in Ireland than in Great Britain in proportion to the population. The number of paupers receiving relief in 1856, and the expenditure, were—

	Number of Paupers.		Expenditure.
England and Wales ..	877,667	..	£6,004,244
Scotland	137,383	..	629,348
Ireland	73,083	..	576,395

The number of paupers in Ireland for 1857 was 56,094. If it were not for old persons and children, the Irish poorhouses might be shut up, for the expenses of the management of them in 1856 was £215,202, very nearly one-half the entire outlay. There is far less crime proportionally in Ireland than in Great Britain. In 1856 the capital sentences in England were 69, Scotland 3, and Ireland 8. The total convictions in England were 14,734; in Scotland, 2,723; and in Ireland, 4,024. The total convictions in Ireland in 1857 were 3,729. The estimated population of the United Kingdom in 1857 was—

England and Wales	19,304,060
Scotland	3,064,500
Ireland	6,047,492

Now, a comparison between the amounts of population and convictions will show that for every million of individuals in each country there are thrice as many capital convictions in England as there are in Ireland, and double the convictions in England that there are in Ireland of offences punishable by transportation or penal servitude. So much for the unmeaning cry of danger to human life in Ireland. The climate of Ireland is remarkably healthy, and has been eminently so to invalid Scotchmen. Mr. Miller here mentioned some cases of restoration to health after long sojourns in foreign climes. There is less heat in summer and less cold in winter than in England, and more moisture in the atmosphere. It is admirably adapted for the growth of all kinds of green crops. The soil of Ireland is, on the whole, superior to that of Great Britain, and yields ample returns. Great progress has been made in draining, the removal of useless fences, and enlargement of fields; but there is much to do. Capital judiciously laid out on the land would undoubtedly yield an ample return. The total quantity of land under crops in 1857 was—

Cereal crops	2,787,716 acres
Green crops	1,604,878 „
Flax, meadow, and clover	1,467,495 „

The total quantity and value of live stock in Ireland in 1857 was—

	Number.		Value.
Horses	600,693	..	£4,805,544
Cattle	3,618,544	..	23,520,536
Sheep	3,448,676	..	3,793,543
Pigs	1,252,152	..	1,565,190
	8,920,065		£33,684,813

The increased value of live stock since 1852 was £5,150,014. The Registrar-General, in calculating the value, did so according to the rates of the Census Commissioners in 1851, viz., horses £8, cattle £6 10s., sheep £1 2s., and pigs £1 5s.; but it is certain that the prices are now about double, conquently fifty-five to sixty millions of pounds sterling may be fairly taken as the present value of live stock in Ireland. There is a large exportation of live stock from Ireland to Great Britain. The number of animals so exported in 1856 was 1,194,380, and their value about £7,271,575 sterling. About one-eighth part of the whole live stock of Ireland is annually exported to Great Britain. In 1856 there were exported from Ireland 2,212,061 quarters of grain, of which 1,904,355 quarters were oats; and there were imported 1,835,546 quarters, of which 910,885 quarters were Indian corn and meal. During the three years ending 31st March, 1856, 1857, and 1858, the balances of the public funds transferred from England to Ireland were £3,689,825. These facts afford undoubted proof of the steady progress of Ireland, and daily increasing wealth of the country. Mr. Miller stated that he considered the high legal rate of interest of 6 per cent. was very prejudicial to Ireland. It gave to Englishmen an idea of insecurity in Irish loans, whereas they were far more secure than loans made on English securities. It was certain this high rate of interest had ruined many families. Titles to property being unimpeachable when granted by the Incumbered Estates Court, there is the greatest inducements to the English capitalists to buy lands, or lend on the security of lands. He made reference to the act 4th and 5th Geo. IV., cap. 29, empowering trustees in England and Scotland to lend in Ireland on real securities. Neither rent nor prices of properties in Ireland are one-half of what they are in England or Scotland. The operations of the Incumbered Estates Court have cleared away many difficulties which formerly stood in the way of selling or acquiring land. The institution of the proposed Land Court, by which proprietors whose estates are free from debt may have their titles ininvestigated, and indisputable titles given to themselves or to purchasers, will be one of the greatest benefits ever conferred on any country. The only local taxes which a tenant farmer pays in Ireland are—the whole county rates, and one-half of the poor-rate. Ireland is, happily, exempt from many crown taxes, which are levied in England and Scotland. Here, there are no taxes on houses, horses, dogs, male servants, carriages, &c. The public roads in Ireland are fully equal to the best roads in England or Scotland, and they are kept in most excellent repair.

Toll-gates are almost unknown, and we may drive from one end of the kingdom to the other without being called on to pay a single penny. The county cess is applied in making and macadamising the roads. The peasantry, the farmer, and the gentry, have not only been civil and obliging, but kind and hospitable to the Scotch and English settlers, all of whom are highly satisfied with the change they have made, and few, indeed, of their number would return back to their native countries. They like the country, the climate, and the people; and the general feeling among them is, that Ireland is a real home to them, and a garden for the agriculturists. Mr. Miller then read extracts from some of the many letters which he had received from Scotch and English farmers. He could not with propriety give the names or addresses of the parties, which he felt he was not at libery to do, as it might involve them in correspondence with strangers asking questions. The first was from a farmer in the province of Leinster, and stated "that the people were generally obliging, civil, and quiet when encouraged; they are good workmen, but require a little training. The women work well, quite equal to the Scotch. His turnip thinning costs him, on an average of the last four years, 1s. 9d. a statute acre: for the second hoeing, 1s. 2d., and this where sixty-five acres are annually grown; his heaviest bill, 3s. 1d. per acre, including mowing, gathering, binding, stooking, and raking. Great advantages offer to the capitalist and enterprising farmers. Great perseverance is required to clear the land, square the fields, and plough deep, and the lightest dressing of manure or guano had a surprising effect. No one who saw the late Dublin shows can deny that we are making great progress in the diffusion of short-horned blood, and that we are little behind the sister-countries. In the feeding of stock we have an advantage, as our climate is particularly favourable to the growth of grass and green crops. With 3 cwt. of Peruvian guano to the statute acre, we grow from 27 to 30 tons of swedes, and on heavy lands as much as 35 to 40 tons. Has been seven years in Ireland, and farms 500 acres. Is from Scotland. The land in his neighbourhood is capable of great improvements, but is occupied mainly by small farmers, whose implements are of the most primitive description, and of course the land badly tilled. The country, as far as the eye can reach, seems a network of fences and small fields and roads. Considers one-twentieth of the land to be taken up by fences and roads. The average rate of labourers' wages is 6s. a week for men, women 2s. 6d., boys and girls 1s. to 1s. 6d. a week. If the men are fed in the kitchen, £8 to £8 10s. a year for the best hands; servant girls from £2 10s. to £3 a year. There is an improvement going on in the country. A great increase in green crops, and a great desire among farmers to improve their breeds of cattle and sheep; also the levelling of old crooked fences, and better draining and managing the land. The peasantry are better off now than they were some time ago. Every one is in full employment, but they are far from being comfortable, as their wages are low and provisions dear. Pauperism is much decreased. The people are not only civil and obliging, but kind and hospitable, and hail the appearance of a landlord among them as a boon. No matter what country he is from, if he is civil and treat them properly, he never met with greater kindness at home. All we want to bring us up to our proper standard are men with money, enterprise, and skill. We have the climate, the labour cheap, and the *raw material*, which only wants to be worked to yield a good per-centage on the capital expended." The next letter was from a Scotch farmer resident in the province of Munster, who has been seven years in Ireland, and farms about three hundred statute acres:—"The lands in his neighbourhood have been much improved, but are capable of a great deal more by a judicious outlay of capital, especially in draining. The average rate of wages are—men 6s., women 3s., children 1s. 6d. to 2s. per week. Has witnessed a marked improvement in the prosperity of the country people; their clothing is now comfortable, and they have every appearance of social and domestic prosperity. Pauperism much decreased; poor rate fifty per cent. lower than it was. His neighbours are most civil and obliging, and always found them so. The climate is mild and genial, being earlier by three weeks for all kinds of crops, than any part of Scotland. This part of Ireland can produce better stock than Limerick and Tipperary. Green crops are largely grown, and yield ample returns; has one of the best of landlords, who has done, and is still doing, all he can to encourage his tenantry, and aids them also by his presence and advice." An English gentleman settled in the province of Connaught says "his farm is above 300 acres; all the lands in his neighbourhood are capable of great improvement, and he particularly states what has been done by Mr. Pollok as an example. The low lands and cut-away bogs, most of which have limestone and gravel lying a few feet below the surface, might be easily reclaimed for grazing or tillage. The average rate of labour is—for men 1s., women 6d., and children 4d. a day; ploughmen 1s. a week extra. There has been great improvement during the last few years. All the labourers find employment, and the wages mentioned are higher by one-half than they were some years ago. The peasantry are better fed and clothed; pauperism has much decreased, and the poor rate about 1½d. in the pound. The people are very civil and obliging. The soil produces most abundant crops of all kinds. The country is remarkably healthy, and is not nearly so wet as I expected to find it." The next letter read was from a Scotch farmer settled in Ulster, who says that "The soil of his part of the province is in general superior to the south of Scotland, and is well adapted for grazing and growing all kinds of green crops to good perfection. Has seen a field of turnips weigh 59 tons per Irish acre—mangolds 46 tons. The winters are mild and open; grass continues growing till January; oats, barley, wheat, and beans grow well. There is a gradual improvement in the appearance of the country. The inhabitants are an industrious and intelligent class of people, civil and obliging, and take great interest in agricultural improvement. Wages of men are 1s. to 1s. 3d. per day; women, 6d. to 8d. There is little pauperism in the locality."

At the conclusion of Mr. Miller's paper he was loudly applauded.

The CHAIRMAN congratulated the society upon having set apart a special evening for the reading of Mr. Miller's valuable and instructive paper, in which he had touched upon almost every branch of Irish agriculture.

Dr. HANCOCK said the society should feel much indebted to Mr. Miller for the simple, direct, and truthful manner in which he had laid before them the valuable information respecting the condition of Irish agriculture, which he had had such excellent opportunities of acquiring. It was gratifying to find that the Englishmen and Scotchmen who came to Ireland and lived amongst us, entertained very different opinions of this country and its people, from those which were promulgated by writers in the English press who knew nothing of Ireland, and he regretted to say also by some of the Dublin newspapers. With respect to what Mr. Miller had said as to Scotch agriculture, he (Dr. Hancock) could speak with confidence, having spent a considerable time in Scotland, during which he had an opportunity of becoming acquainted with some of the most distinguished agriculturists of that country. The general impression made upon his mind was, that nothing could be more successful than the manner in which Scotch agriculture was practised; but, at the same time, he came away with the impression that the mode in which it was carried out was not an unmixed good. In the county of Donegal, the change from one system to another had not been carried out in a manner calculated to lead to satisfactory results as regarded the condition of the people (Hear, hear). There was one matter alluded to by Mr. Miller, in which we were clearly in advance of our English neighbours—he meant the subject of tolls. All tolls on Irish roads had been abolished by act of parliament; but, as a proof how slow people were to learn wisdom, he might mention the singular fact that very soon after the House of Commons had abolished tolls on Irish roads, a bill was introduced for the purpose of charging tolls in every fair or market in Ireland (Hear, hear). One remarkable fact stated by Mr. Miller was, that a large number of Irish farmers had sought his advice as to the best mode of investing their money in the funds. The chief cause of Ireland's misfortunes was represented by nearly every writer who treated of the subject down to the year 1846, to be the want of capital. It now appeared that the Irish farmers had plenty of capital, but they did not employ it in the improvement of their land (Hear, hear). This showed clearly enough that it was not the want of capital, but the defective relations between landlord and tenant which had retarded the progress of agricultural improvement in Ireland (Hear). Mr. Miller intimated that this was the case when he stated the difficulty which English and Scotch farmers had in carrying out improvements, because of the unwillingness of the landlords to do their part in the erection of suitable farm-houses, offices, &c., and making other improvements on their own property, which were invariably done by the landholders of the sister-country. The Incumbered Estates Court had doubtless effected much good, but it was clear, from these facts, that some legislation was required to place the relations between landlord and tenant upon an equitable and satisfactory basis (Hear, hear). He was also of opinion that the principle of the Incumbered Estates Court ought to be extended to all landed property in Ireland (applause).

The **Chairman** made some observations with respect to the vast improvements which had, within his recollection, been effected in Ireland, and expressed his opinion that the progress of improvement, so far from being slow, was, in reality, very rapid.

AN AMERICAN FARMER.

Springfield, the residence of George Patterson, Esq., in Carroll county, contains 1,759 acres. About 700 are in cultivation. In the improvement of his estate, Mr. Patterson casually mentioned that he had applied 240,000 bushels of lime, at a cost of over 50,000 dols. He said that, as a farmer, he "believed in lime, grass, and dung"; and we had evidence that it was a creed not of words merely, but of actions. For many years Mr. P. has devoted himself closely to his agricultural operations, and has been a minute observer, as well as a careful and thorough practitioner.

The first thing to spring up after the application of lime he had noticed to be mulleins; then comes the white clover, and lastly, what he considers undoubtedly the same grass as the Kentucky blue grass, *Poa pratensis*. In speaking of grasses, Mr. P. mentioned Timothy Hanson, of Baltimore, who first introduced that kind known so widely by his christian name, and which also bears in some parts of the country the sirname of one Herd, who is said to have discovered it growing wild.

The rotation on which Mr. Patterson has decided is one of nine years, viz., clover for two years, wheat one year, Timothy mowed for hay two years, and then pastured for two years more, and lastly one crop of corn. Timothy and orchard grass he compared thus: the former will make twice the hay, but the latter gives more pasture. Timothy he cuts just as the head is forming. To cure clover hay properly, it must retain the colour of flower and leaf perfectly, and Mr. Patterson recommends this as the cheapest and simplest mode: he lets it lie in the swatho about six hours, then turns and gives the lower side half an hour to dry in, puts up in small cocks, and takes in the next day.

His treatment of the corn crop may be interesting. The Timothy sod having been turned in, in the fall, as deeply as possible, say by ploughing 9 or 10 inches, the field is thoroughly harrowed three times in spring, and laid off by the plough 3½ feet by 4. The corn is dropped in, in the rows laid off by the first ploughing, and is covered by the harrow. There is thus no furrow left for the water to tear out the seed or young plants.

The Patterson Devons.—But Mr. Patterson's Devons are the main feature of the place. The herd is descended from six heifers and a bull presented to a brother of the present owner by Mr. Coke, of Holkham, England, who afterwards became Earl of Leicester—a man whose fondness for fine trees is as noted as that he manifested for superior stock; it being related of him that he planted 1,800 acres in wood, and lived to sail in a yacht made from timber of his own planting. In order to change the blood when necessary, Mr. Patterson has imported five bulls during the twenty-two years since the stock first came into his hands: the bull Anchises (140), bought from the Earl of Leicester, who stated that he had purchased him for his own use from one of the best herds in Devonshire, and imported in 1836; Eclipse (191), calved in 1839, and imported from Mr. Bloomfield, of Warham, Norfolk, England; Herod (214), calved in 1844, and imported from the same herd in 1846; Norfolk (266), calved in 1851, and imported from the same herd the succeeding year; and Chatsfield (to be entered in next vol. Herd Book), now three years old, imported two years after from the Quartly stock, and, although somewhat smaller than those previously brought over, still apparently very satisfactory to his owner, and an animal of great symmetry and promise. The price paid for him at home was one hundred guineas, and his cost by the time he reached his present residence not much short of 81,000 dollars.

The herd now includes between eighty and ninety head—the young cows by "Norfolk," and the older ones by "Herod." Mr. Patterson's stock has always been selected more with a view to the dairy qualities, by which the breed was first mainly distinguished, than to that perfection of form, which, together with some diminution in size, characterizes the more recently "improved" importations. He thinks that his stock will run from 25 to 33 per cent. the heavier of the two, but I should scarcely estimate the difference so great. I was really surprised to notice the *evenness* that characterizes all the animals we saw, and there can be few herds anywhere in which the general average of merit must be ranked so high. Doubtless a judge of greater experience would have perceived differences of much importance to him in considering, as a breeder should, the influence each point in the parent possesses upon his progeny, but I question whether the majority of such committees as render decisions at our State shows would not have found it a very difficult task to select the best one, or two, or three, from the 15 to 20 head of young stock we saw in one field, while they might have been scarcely less puzzled in deciding the merits of the cows.

Mr. Patterson still adheres to the way of breeding prevalent before the days of Herd Books—only registering the sires of his calves, and not keeping their pedigrees back from dam to dam. Take away, thus, the influence which every item in a pedigree has come to have upon the decisions of most who are at all familiar with them, and where so many are so nearly equal, there might be no two judges whose opinions would exactly coincide. The condition of the herd attests an abundant supply of food, but no overfeeding or stuffing. I was somewhat astonished, in view of the smooth coats and soft hides, and well-fleshed frames before me, to learn that it has been the custom to let the calves run unsheltered the first winter, with the view of rendering them more hardy. It has also been the practice to "cut the first calf's throat," in order to milk the heifer, and develop her bag well during her first milking season. The calves run with the cows, instead of being brought up by hand and fed with milk from two or three, as it is intimated breeders of fine stock sometimes are obliged to do; and it thus becomes a matter of importance to render the dams large yielders of the food so necessary to the thriftiness of their calves, while the size and fatness in which the latter were found evidences the successful attainment to this end.

Readers at the south, or elsewhere, who may have been heretofore unsuccessful applicants for the limited surplus Mr. Patterson has had yearly to dispose of from his Devon herd, will be pleased to learn that this year there is a somewhat larger number offered than usual. Mr. Patterson's address is at the Skyesville post-office.

Other Stock on the Place.—Our host's flock of sheep, mostly, I think, of Southdown grades, numbered three hundred. As to swine, after trying Sussex, Essex, Chester county, and two or three other sorts, he had pitched upon the Berkshires as the best bacon makers. A convenient building, constructed of stone in ten compartments, would accommodate 80 or 100 hogs. They are only raised to a sufficient extent, I understood, to supply the demand for the workmen on the estate—little being sold from the farm, except the Devons, some wheat, and a few score of fattened steers, together with the surplus from the sheep flock.

Fourteen or fifteen horses are employed in farm work, and Mr. Patterson has some breeding stock in this department, of considerable value. A three-year-old blood colt called Sultan, by Childe Harold, was, among several others, examined at length by our company. He stands full 16 hands high, and was remarked as very good in most points which horsemen esteem—long in the arm and short in the cannon, beautiful in the pastern, which is neither too long nor too short*; wide between the eyes, and very gentle and intelligent in expression; with an excellent back, graceful and spirited action, and the promise of a sufficient modicum of speed. One bright morning, when only eight months old, he cleared three post-and-rail fences in succession, while in frolicsome humour, and when he comes to be broken will probably show that he has lost little of his activity. We also saw a fine old horse now upwards of 27, seventeen hands high, which for fifteen years was in Mr. Patterson's constant service as a saddle horse.

In respect to the different kinds of cattle, Mr. Patterson makes a distinction between the words *race* and *breed,* defining the latter as a cross of races. Thus he spoke of the Scotch polled cattle, the Herefords, and the Devons, all of which possess a marked uniformity, as *races;* while shorthorns and Ayrshires he ranked as *breeds.*—Country Gentleman.

TO A MANY-COLOURED OAK-BOUGH.

Had Beauty no more daughters
  That she gave such gifts to thee,
Hanging o'er the rippling waters,
  Where the mellow sunbeams be?
Where the summer-cloud hangs lightly,
  Like a giant heap of snow,
And the yellow clay shine brightly,
  In the deep recess below.

While the hues of sunset linger
  (Happy moments all too brief),
Many a gay and restless singer
  Seeks the shelter of thy leaf:
There in ecstacy reposing,
  Its insectine labour o'er,
Scarcely pauses from its dozing,
  At the plashing of my oar.

Surely here did Iris wander
  When she chose her brilliant dyes,
Where each shade of green and amber
  In the wave reflected lies;
Where the silver eel floats daily,
  In the shelter of the tree,
And the crimson carp shoots gaily
  Through the water bright and free

And when winter's dreary fingers
  Pluck the petals from the rose,
And the eye that on thee lingers
  Shall be closed in deep repose—
Visions still of sunny waters,
  In my dreams will visit me,
Where of Beauty's chosen daughters,
  Thou must ever fairest be

Written in October, 1857. Emily Lockyer.

CALENDAR OF AGRICULTURE.

This is the first month of winter, and begins the labours of the following year. The crops of the preceding year are manufactured for use, and applied to the respective purposes.

Regular thrashings of grain are required, in order to supply the yards with litter, and the cutters with chaff; litter the yards often, thinly and evenly; keep the surface level, and spread over it any substances of different quality; cut chaff of hay and straw mixed for the work horses, the fattening bullocks that are tied up, and for being steamed for the milch cows.

Supply to the cattle in the yards, by break of day, an ample meal of turnips, rooted and topped for the fattening animals, and with the tops attached for store cattle. Wooden cribs with latticed bottoms suit well, as the rain and filth escape downwards. The turnips should be all consumed before night, to prevent accidents from choking happening unseen. Give milch cows cabbages and beetroot, and a daily meal of steamed meats.

Feed work horses with chaff of hay and straw, a portion of grain, with steamed roots, as potatoes and carrots, once a day, or in the evening.

The different sheep flocks require the same careful treatment in the ley or stubble fields, and on the grown turnips. Dry beds and shelter are essential, and near to the food that is being consumed.

Young horses in a yard or paddock require ample feeding with chaff and corn mixed, and potatoes and carrots; provide soft food of some kind, as the first winter's treatment has great effect in stamping the future animal.

Feed pigs in the sties with steamed roots and meal, and in the store yard with raw food, as potatoes and beet. Use ample littering, and keep all dry and warm.

Supply poultry with light grains and steamed potatoes mashed with meal. Warmth and shelter are essential to these animals.

Gather stones for useful purposes, or raise from the quarry, and carry to the lands to be drained, which may be well done in dry weather on grass lands. Fill the drains as soon as dug, to prevent the falling-in of the earthy sides.

Flood water-meadows. The main channels, conveying gutters, and the flood gates must be cleared out, and put into current going order.

Cut underwood; plant forest trees; open-drain plantations; make new fences, and repair old ones; collect earths and composts; make and clean roads, and cut open ditches—this month favours the latter purposes, before the winter floods and snows commence.

Take up Swedish turnips in dry weather, dress the roots neatly, and place the bulbs in store for winter and spring use. Raise also common turnips for a month's provision: in mild weather the fresh condition may not be preserved for a longer time.

Plough stubble grounds for the next year's fallow crops, and for wheat fallowings the furrow must be deep in seven or eight inches, in order to afford soil for the future workings of the land. If the weather permits, the fallowing may be done on the lands intended for early green crops, as potatoes and beetroot. The spring work is much expedited even by a partial preparation of the ground.

Lay dung and composts on grass lands during dry and favourable weather.

Sell and deliver all grains as thrashed—monopolizing and keeping in store are seldom profitable in the end. It is condemning capital to idleness, and prevents the healthy circulation.

CHEAP FERTILIZING COMPOST.

Sir,—The fertilizing effects of nitrogen in manure are now well known; and if we can fix it from the air, as nitric acid, by cheap materials and easy management, we may do much towards making up our deficiency in guano. Chemists are aware that alkalies tend, not only to absorption, but even to the formation of acids; and some recent experiments seem to indicate something like this in their action on the atmosphere, which contains the elements of nitric acid in inexhaustible quantities. We need not, however, go more into theory here, as agricultural readers like to come to the point, and after all experiment must decide.

The cheapest alkali is a mixture of lime and salt, which to act effectually on the air, must be mixed with some material that will allow the air to pass through; nothing fitter for this than bark from the tan pits, though possessing little or no manuring value of its own. Coal tar contains a little ammonia, with much soluble carbonaceous matter, and, well mixed with the lime, salt and bark will give them a little of a soapy character, favourable to diffusion in the soil, and increasing its offensiveness to insects.

These considerations lead me to suggest a mixture of lime and salt with used bark and coal tar, as a compost to produce and absorb nitric acid from the air; say two tons of lime with one of salt, the salt mixed well with the lime as soon as slaked, beaten together, like mortar, and set in a compact heap for ten or twelve hours; and meanwhile four or five cwt. of coal tar (say an old oil hogshead three-quarters full) well mixed up with five tons of used bark; and the whole then put together, to react upon the air. The heap should be turned over once or twice a month, oftener in warm weather than cold.

The heap would be best where there is a good current of air; but so far sheltered by trees or otherwise, as not to get often flushed with rain, so as to wash out the alkali; nor should it get too dry.

The above are the cheapest materials.

Where pilchard salt is at hand, so as to cost but little carriage, it is preferable to common salt, because of the manuring matter it contains.

And where used bark is objectionable (as in very light soils), hedge or ditch sods, or surface peat, may be substituted. And where coal tar is too costly carriage, ditch or pond mud may be tried instead (though not destructive to vermin).

It may work in heap as long as desirable, but probably not less than six months, including winter, or four months in summer. How much to apply per acre can hardly be directed, as I do not know of its ever having been tried on the principle of fixing nitric acid. According as it answers, farmers may expect to find out improved methods of making and using it.

I. Prideaux.

ROOT AND GREEN CROPS THE MAINSTAY OF ALL GOOD FARMING.

Sir,—The high farming on the four-course system and under tenant-right, upon the Lincolnshire Wolds and Lincoln Heath, and the vast improvement made upon the said land, are astonishing. Shiploads of bones and artificial manures have been fetched from far distant climes, to manure the said Wolds and Heath. This, once a wilderness, strikes thousands of thinking men with admiration, to see not only fine crops of corn, clover, and root crops, but a fine breed of short-horned cattle, long-woolled Lincolnshire sheep, and highly-valuable horses, upon land, a great part of which, half a century back, was let as rabbit warrens, of 1,000 acres in each warren, at 2s. 6d. per acre; now let at from 25s. to 30s. per acre per annum. Half the said land being clover, *alias* seeds and root crops, &c., and being consumed upon the farm with cake and corn, produces a vast deal of strong manure, which fills a large stack-yard full of gigantic stacks of corn and clover, acres of stacks, streets of stacks, *alias* rows of stacks, like mountains, as long as some streets in London, all produced from land which a century back, was as wild as the deserts in Africa; capital, skill, perseverance, generosity, and tenant-right, *alias* justice, have brought North Lincolnshire farming to be a fine example to all the world. The truth is neither puffing nor flattery. If any man dispute my assertion, let him take a tour through North Lincolnshire any year, and he will find, just after harvest, the monstrous stack-yards full of leviathan stacks, and upon his tour let him particularly notice the Earl of Yarborough's estates and his tenantry, many of whom follow the fox and hounds in scarlet, and their good and noble lord is proud and pleased to see some of them upon horses worth hundreds of pounds, each horse; nay, upon horses second to none in value. The above wealthy farmers ride their horses boldly over gigantic fences, for profit; nay, to sell faint-hearted, timid, wealthy men, their horses at a high price. As the more brushes a farmer wins, the more horses he sells at a first-class price is the cause of farmers' throwing the dirt in rich men's faces; one party riding for pleasure, and the other for profit.

Samuel Arnsby.

Millfield, Peterborough, Oct. 19.

SPIRIT OF ENTERPRISE AMONGST THE AGRICULTURAL CLASS. — At the North West Bucks Meeting, the Marquis of Chandos made the following pertinent remarks in reference to the present improved state of English agriculture. He said that he had been for many years connected with agricultural pursuits, and felt the warmest interest in them. When he first began to turn his attention in that direction, another large interest was rising up, and threatening to overwhelm agriculture. The manufacturing interest, it was said, was to swamp it altogether. He asked himself, at the time, why was it that the agriculturists were not keeping pace with the manufacturers? He could not help thinking that much of the rapid rise and success of the manufacturing interest was owing to the intimate connexion they maintained, and the spirit of emulation which animated them. For instance, if one man thought that he was not producing a particular description of manufacture so fast or so cheap as his neighbour, he would go to his mechanist, and say, "You must make a better machine;" and those repeated applications for improved machinery in the manufacturing department of industry had so quickened the invention of the makers, that they had succeeded in turning out machines that had astonished the world. Twenty years ago, they would all admit, that there was little of that spirit of improvement, and very little of that ability, as respected agriculture. But they all knew what a struggle they had had to keep their position. He believed, however, that it would be now admitted by everybody that the art of cultivating the ground had been improved more in this than in any other country in the world. Farmers, as compared with manufacturers, had very great difficulties to contend with. They had not the seasons under their control; their operation were not carried on under roofs; they could not always plough their land at a time when it was convenient for them to do so. Having then, to face these difficulties, what was the course which they ought to pursue? It was plainly this, that they must so improve their machinery as to enable them practically to disregard the weather, by performing those operations with great rapidity which at present took a considerable time to accomplish. They had seen that day the experiment of steam cultivation in a field near the town. Perhaps that might not be brought into general use in the days of the older farmers now living; but he was satisfied that, sooner or later, an invention so valuable would be generally resorted to, and could not fail of success; and it was no small credit to the town of Buckingham that it now possessed an establishment for the manufacture of steam ploughs. Nothing more surely indicated the existence of a spirit of enterprise among the agricultural classes than the growth, here and there, in the agricultural districts, of large establishments for the purpose of supplying an improved description of machinery for the working of the land.

THE THISTLE QUESTION.—Sir William Bowyer Smijth, at the Ongar Society, hit the mark fairly, when he said, in proposing the toast of Prosperity to the Society, "What do you think about thistles? You profess to be labourers' friends, and I don't know how you could be better friends to the labourer than by solving that question. If I could only raise a discussion in the county newspapers upon the readiest way of eradicating thistles, or even upon their different varieties, for really I have never been able to discover the different species yet, I can only say that it will be perfectly worth while naming it as the subject for discussion this evening. It is a harmless one, and one upon which there may not be much difference of opinion. I therefore, gentlemen, invite your opinions upon the subject of thistles. It was only the other day that I was playing cricket on a hill across which a high wind swept westerly, where I declare the thistles were so thick that it was with difficulty I could attend to the ball. I am sorry to say that I see great neglect on the road-ways, in the little bits of waste, which are swarming with thistle-down, and which is exhausting the powers of the labourers in attempting to reduce it. If the Ongar Labourers' Friend Society could succeed in eradicating these pests from permanent pastures, it would, I am sure, be the most valuable society in the world." SIR CHARLES C. SMITH gave his own and an unknown lady's plan for eradicating them. Was there not satire in the lady's advice? However, hear Sir Charles. He said: "With regard to the thistle question, he had a field which appeared as though it were going to grow nothing but thistles, and the other day a lady noticing its state exclaimed, 'Why on earth don't you turn your donkey into the field? he would eat up all the thistles directly.' But he (Sir Charles) did not think the donkey would eat up all the thistles. The donkey would detect a difference, if Sir Bowyer Smijth had failed, and would only eat the sow thistles—the common thistle the donkey would not touch or look at. The only practical way of dealing with thistles he (Sir Charles) thought was to mow them down before seed-time. But the practice of getting rid of spreading fences and copses would do more towards the eradication of those obnoxious weeds than anything else, and no one had done more in that way than his friend Sir Bowyer Smijth."

AGRICULTURAL REPORTS.

GENERAL AGRICULTURAL REPORT FOR OCTOBER.

Although the importations of foreign wheat have not been to say extensive for the time of year, and although the supplies of English on offer in our various markets have not increased, the trade in all parts of the United Kingdom has continued heavy, and slightly reduced rates have been again submitted to. Spring corn, too, has sold slowly, and, with the exception of fine malting barley, which is very scarce even in our best districts, prices generally have had a drooping tendency. The continued depression in the corn trade has given rise to serious forebodings as regards the future. Although our impression is that the quotations have seen their lowest point, we may briefly inquire into the causes which have led to the present heaviness. In the first place, we find that the importations of foreign wheat into the United Kingdom, during the nine months ending on the 30th September, were 3,236,038 quarters, against 1,312,705 quarters in the corresponding period in 1857, and 3,234,717 quarters in 1856. Compared with last year, therefore, there is a very large excess in the arrivals; consequently the stocks in warehouse, although extensive forced sales have taken place, have accumulated. In the second place, we must bear in mind that our farmers still hold a large quantity of wheat grown in 1857, and that they have this season grown what may be termed an average crop. And, in the last place, we may notice a similar state of things in the United States, where the actual surplus produce of wheat on hand, above the wants of the people, is estimated at 4,000,000 quarters. Consumption in this country has certainly not fallen off; but, under the peculiar features of the trade here referred to, speculation in arrived produce has become wholly in abeyance; and the question to determine is, what feature is there in the trade calculated to give rise to speculative investments? At present, with a knowledge on the part of the millers that ample supplies are everywhere to be met with—that little or no demand is likely to arise at the outports for inland consumption—and that future arrivals from abroad will be fully adequate to our requirements—the wheat trade is conducted wholly upon the "hand to mouth" principle. A plentiful supply of money in the discount market, with the quotations for best paper as low as 2⅛ ¼ per cent., has failed to induce operations in produce. With ample supplies, therefore—with more than usual anxiety on the part of the shippers abroad to turn their wheat into money as fast as it arrives in this country—we may safely state that there is no prospect of any upward movement in prices for some time. At one time it was thought that France was about to return to protectionist principles; but we now find that, *as regards importations* of food, the Decree of the 22nd of September, 1857, has been extended to the 30th September, 1859. Be it observed that the official notice extending the time for imports is wholly silent as regards exports, consequently the sliding scale respecting the latter is in operation. At present prices the export duties in France are not high, but, of course, they add materially to the expense of forwarding food to England, and they tend to prove that our previous estimates of the crops in that country—viz., that they are deficient by one-fourth compared with 1857—are tolerably correct. If the yield of wheat were large, and in excess of consumption, the French Government would hardly have deemed it necessary to impose duties upon exports. Our impression is, therefore, that in 1859 we shall import considerably less grain than during the present year—that there will be much less pressure upon our markets—and that prices will show more steadiness than for some time past. It must be admitted that wheat is now selling at what may be called an unnaturally low price, and that, consequently, there is ample room for an improvement in it.

The potato crop, both in the United Kingdom and on the Continent, appears to have turned out much better than was at one time anticipated. The quantity of potatoes grown is enormous, and the actual losses by disease have been much exaggerated. At the corresponding period in 1857 prices ranged from £4 to £7 per ton; now they are quoted at from £2 15s. to £4 10s., and the supplies coming forward exhibit very few traces of rot. Abundant supplies of potatoes must, as a matter of course, have considerable influence upon the value of the better kinds of food.

Farmers have thrashed out about average supplies of wheat, and, for the most part, they have been disposed of in fair average condition. On the continent the trade has continued heavy, and in the United States produce generally has been selling at very low prices.

Owing to the want of moisture out-door farm labours have made comparatively little progress. The hardness of the soil has prevented ploughing to any extent, and rain is still much wanted in nearly every county in England.

The turnip and carrot crops are turning out tolerably productive; but they are certainly not equal to many former years either as regards quantity or quality.

For hay there has been a steady demand, and prices have had an upward tendency. Straw, however, from its abundance, has sold slowly, at low currencies, viz., from 24s. to 29s. per load.

Notwithstanding that the manufacturing industry of the country is improving—that many of the manufacturers are working to order—and that the whole of the mills are running full time—the wool trade has become heavy, and prices have had a drooping tendency. The causes of the depression in the demand may be attributed, not so much to the want of orders, as to the limit at which they are fixed, and which do not correspond to the advance which took place in wool during the months of August and September.

Another very large growth of hops has been secured, consequently prices have ruled very low. When we consider that an immense supply of hops of the growths of 1856 and 1857 still remains on hand, we can hardly anticipate any improvement in the quotations.

Throughout Ireland and Scotland produce generally has ruled dull and drooping. The shipments of wheat, oats, &c. to England have steadily increased.

REVIEW OF THE CATTLE TRADE DURING THE PAST MONTH.

Since the passing of the new tariff, we have never witnessed such an inferior importation of foreign stock into London as during the month just concluded. From all parts of the Continent, but more especially from Sweden, both beasts and sheep have come to hand in miserably low condition, and of course corresponding prices have been paid for them. The cause of this great deficiency in weight and condition has arisen from the long-continued drought, a scarcity in the supply of winter food, and the great difficulties experienced on the part of the graziers in finding sustenance for the stock. The shipment of large supplies to England in a state which would hardly warrant the Customs' officers in allowing them to be landed for consumption, has of course entailed serious losses to the owners; and it has given rise to much discussion in more than one quarter whether it will not eventually have considerable influence upon the value of food in this country. Although very large sums have been drawn from England from time to time by the foreign graziers for stock, great poverty is said to exist amongst them (those residing in Holland may, perhaps, be deemed an exception to this rule); hence they are not in a position to follow up any advantage which might be derived from a large importation of hay, straw, &c., either from London or Hull. In the early part of the month, over 200 tons of compressed hay were purchased here in each week for transmission abroad, but since then the transactions have fallen to under 20 tons per week; so that we may look forward to continued imports of stock in less than a half-fat state, and, to some extent, we may agree with many parties that prices must at some future time show considerably more firmness than within the last six weeks. It is, however, necessary that we should approach this question with much caution, or not a few of our graziers may be led into the error—for such it may turn out—of giving more money for store animals than the future state of the trade may warrant. In the first place, we may safely assume that France and Belgium will have no stock to spare for us during the coming year; and here we may remark that it is a fallacy to assume that, because stock has been shipped from Calais and Ostend on several occasions during the last three or four months, either beasts, sheep, or calves have been drawn from those countries, the supplies being forwarded from Holland and Germany by railway, in order to secure a shorter sea-passage; that the importations from Holland will exhibit a falling off in number, though they may improve in quality; and that the receipts from Holstein, Denmark, &c., will show a great deficiency. But this falling off in condition and weight will, we imagine, be made good by additional arrivals both from Ireland and Scotland, but more especially from the former country. Who that has travelled in Ireland can but feel surprised at the wonderful improvement which has of late years been observed in the condition of its agriculture? and who can but feel gratified at the receipt into London week by week, during what may be termed the "season," of 1,000 head of beasts, and an equal number of sheep, all above average quality, irrespective of the supplies forwarded almost daily to Liverpool for some of the inland markets? The old and defective breeds of stock in Ireland, though a few of them are still coming to hand from the north, are gradually receding before our shorthorned beasts, and our Lincoln, Leicester, and half-bred sheep. It may be said, however, that there is ample room for further improvement. Doubtless; but beasts from Ireland, to produce from £22 to £28, and sheep from 50s. to 56s. each in London, is a strong proof that Irish agriculture is flourishing under the auspices of a good ready-money market in England.

The want of an adequate fall of rain has been severely felt in some of our own grazing districts, into which large supplies of fodder have been sent from other counties; but we are certainly better off for food than our Continental neighbours, whilst in Ireland no actual scarcity exists, and stock feeding may, therefore, continue to progress successfully. We can hardly venture to state that the excess in the receipts from the various Irish ports will be very large, but we may safely predict a steady increase in it, sufficiently extensive, indeed, to compensate for any forthcoming deficiency in the importations from the Continent. But then it may be asked, What has produced the great heaviness in the trade for all kinds of stock during the past month, seeing that very little consumable meat has been imported in that time? It is well known that from the period of the last famine in Ireland, until the commencement of 1857, the deficiency in the number of pigs in the United Kingdom was very great. Prices, of course, ruled high, and high quotations for pork had a corresponding influence upon the value of beef and mutton. Last year, pigs, although they had rapidly increased in number, commanded extravagant rates, and everywhere they were to be met with, without checking the demand. However, it was clear that very high prices, during several consecutive years, must be followed by low prices, taking into account the rapidity with which pigs increase in a general way. The present season has, therefore, opened with wonderfully large supplies; in point of fact, our markets have been literally glutted with pork, and the consequence is that that description of food has, from its low price, been preferred to beef and mutton; and the pig dealers have before them one of the worst winters, as to price, almost on record. It has, however, been argued that the heaviness in the cattle trade generally is the result of a falling off in the consumption of the better kinds of food. No such thing. Trade and commerce are steadily improving from the effects of the last commercial panic, and consumption everywhere is very large, considerably larger, indeed, than at the corresponding period in 1857. Another cause which may have reduced the price of stock in the metropolitan markets may be the large numbers exhibited. True, many of the foreign beasts have sold as low as £5 each, and there has been an actual deficiency of prime meat; but we all know that great heaviness in the demand for inferior animals is sure to be followed by a somewhat dragging trade for prime stock, and with it drooping currencies.

Notwithstanding the comparative shortness in the supply of food in some quarters, the health of the stock in this country has continued good, and very few losses have been sustained. In France, however, the epidemic appears to have increased; but whilst on this subject, we may state that the cowkeepers of London have lost fully twenty per cent. of their stock; the cows have suddenly lost their milk, and very large numbers have been disposed of for slaughtering purposes.

The following return shows the imports of foreign stock into London during the month:—

Beasts	4,600	head.
Sheep	24,145	„
Lambs	179	„
Calves	1,581	„
Pigs	553	„
Total	31,058	

IMPORTS AT CORRESPONDING SEASONS.

Oct.	Beasts.	Sheep.	Calves.	Pigs.
1857	5,819	24,102	1,998	1,233
1856	8,871	10,502	1,280	895
1855	8,136	21,137	1,358	1,501
1854	6,894	16,328	1,609	1,063
1853	8,190	30,643	1,797	1,585
1852	7,792	26,672	1,350	1,624

From the above comparison it appears that the arrivals of foreign stock have fallen short of some previous years; and we may fairly assume that, had it not been for the want of food on the Continent, the importations, since our last, would have exhibited a further great deficiency.

The total supplies of stock exhibited in the Metropolitan Market have been—

Beasts	26,910	head.
Cows	516	„
Sheep	120,300	„
Calves	1,738	„
Pigs	2,940	„

Of the above supplies of beasts, 14,040 shorthorns came to hand from Lincolnshire, Leicestershire, and Northamptonshire; 2,700 various breeds from other parts of England; 276 Scots from Scotland; and 3,720 oxen, &c., from Ireland.

COMPARISON OF SUPPLIES.

Oct.	Beasts.	Cows.	Sheep.	Calves.	Pigs.
1857	26,833	497	115,409	1,572	2,580
1856	24,941	457	103,870	1.956	3,918
1855	21,666	490	118,578	2,748	3,558
1854	26,456	510	146,048	1,900	3,620
1853	27,327	545	145,400	2,517	3,112
1852	26,134	525	132,430	2,556	2,770

The price of beef, last month, ranged from 2s. 8d. to 4s. 10d.; mutton, 2s. 10d. to 5s.; veal, 3s. 4d. to 5s.; and pork, 2s. 10d. to 4s. 4d. per 8lbs. to sink the offal. These quotations show a very wide range between the lowest and highest figures.

COMPARISON OF PRICES.

	Oct., 1854.	Oct, 1855.
	s. d. s d.	s. d. s. d.
Beef, from	3 2 to 5 0	3 2 to 5 0
Mutton	3 2 — 5 0	3 4 — 5 0
Veal	3 0 — 4 8	3 6 — 5 4
Pork	3 4 — 5 0	3 10 — 5 2

	Oct., 1856.	Oct., 1857.
	s. d. s. d.	s. d. s. d.
Beef, from	2 10 to 4 10	3 2 to 5 0
Mutton	3 6 — 5 2	3 4 — 5 6
Veal	3 6 — 5 4	3 4 — 5 4
Pork	3 6 — 5 2	3 6 — 5 4

The supplies of both town and country-killed meat on offer in Newgate and Leadenhall markets have been very extensive. Those of pork have been unusually large. Generally speaking, the trade has ruled heavy, at very low prices. Beef has sold at from 2s. 6d. to 4s. 4d.; mutton, 2s. 6d. to 4s. 4d.; veal, 3s. 4d. to 4s. 4d.; pork, 2s. 4d. to 4s. 4d. per 8lb. by the carcass.

ISLE OF ELY.

Since our last report, with the exception of one or two days, the weather has been uniformly dry and parching. We have also had one or two severe frosts, and a few foggy mornings. Wheat-seeding has been considerably retarded. Some of our farmers have been busily engaged putting in the wheat, and in some instances have sown it on far too dry a seed-bed, and are in danger of realizing a weak and irregular plant. Others have selected those fields where the greatest amount of moisture prevailed, and where there was a prospect of the wheat vegetating properly, and have sown these, leaving all those other fields, where the soil was too dry and dusty, until the fertilizing rain should drop down its fatness upon them. And yesterday this long-looked-for and anxiously-desired blessing came. The wind blew from the N.E, and the barometer was low; and during the greater part of the day and evening the rain fell steadily, and at intervals heavily. The soil was too dry to be thoroughly saturated with one day's rain; but there has been sufficient to enable our farmers to recommence sowing, and there are indications that more is at hand; and more is certainly needed. The long-continued drought has not only interrupted the wheat-seeding, but has also had a prejudicial effect upon the pastures, the mangolds, and the coleseed. The pastures were beginning to look bare; and water was becoming scarce. The mangolds have not increased so much in size and weight as they would otherwise have done, and, although a good full crop, are by no means so heavy as we were led to anticipate a month ago they would be. The coleseeds on the dry, gravelly soils began to show yellow leaves, and were seriously injured for want of moisture. Potatoes have turned out well: the crop is heavy, but not free from disease. On the dry soils it is generally sound; but on those lands where the subsoil is damp and cool, it is a good deal affected by disease. Beef and mutton have continued steady in price; but store cattle and sheep have been a slow sale, arising from the shortness of grass keeping. The corn markets during the last fortnight have evinced more tone and firmness, and prices for the best wheats have slightly advanced; but the trade has not generally been animated. Supplies will probably continue shorter, as the first thrash is over, and farmers will scarcely rush to market with *all* their corn before Christmas, with a no more tempting and remunerative price than 40s. per qr.—Oct. 19.

MONTHLY RETURN.

AN ACCOUNT SHEWING THE QUANTITIES OF CORN GRAIN, MEAL, AND FLOUR, IMPORTED INTO THE UNITED KINGDOM, AND ADMITTED TO HOME CONSUMPTION, IN THE MONTH OF SEPTEMBER, 1858.

Species of Corn, Grain, Meal, and Flour.	Imported from foreign Countries.	Imported from British Possessions out of Europe	Total.
	qrs. bush.	qrs. bush.	qrs. bush.
Wheat	295945 6	10867 0	306812 6
Barley	105744 7	..	105744 7
Oats	243189 0	..	243189 0
Rye	2761 7	6 0	2767 7
Peas	13112 7	648 4	13761 3
Beans	36298 4	..	36298 4
Maize or Indian Corn	141606 5	..	141606 5
Buck Wheat	5 0	..	5 0
Beer or Bigg	..	..	..
Total of Corn and Grain	838664 4	11521 4	850186 0
	cwts. qr. lb.	cwts. qr. lb.	cwts. qr. lb.
Wheat Meal and Flour	186497 3 12	9686 1 12	196184 0 24
Barley Meal	..	..	..
Oat Meal	11 3 1	181 2 0	193 1 1
Rye Meal	550 1 17	..	550 1 17
Pea Meal	0 2 0	..	0 2 0
Indian Meal	220 2 18	..	220 2 18
Buck Wheat Meal	11 0 10	..	11 0 10
Total of Meal and Flour.	187292 1 2	9867 3 12	197160 0 14

AGRICULTURAL INTELLIGENCE, FAIRS, &c.

AXMINSTER FAIR.—The supply of sheep was large, the number being between 5,000 and 6,000, the main part of which changed hands at lower rates. The supply of bullocks was not so large as usual. Fat beef was scarce, at from 10s. to 11s. per score. Cows and calves from 11*l.* to 15*l.* Barreners were not in good demand, but good ones fetched 12*l.* Heifers, from 6*l.* to 8*l.* Pigs were abundant, the highest quality averaging from 50s. to 55s.; slips, according to size, from 10s. to 24s.

BLYTH FAIR.—In beasts, both bullocks and heifers sold well at about 8s. a stone. Sheep were difficult to quit, even at reduced prices. There was a considerable number of cart horses and young ones, for which about the same prices as those obtained at East Retford were readily paid. In pigs the fair was extensively supplied, Mr. Roberts, of Worksop, and Mr. Parkin, of Mission, being the principal showers. But little business was done, although the quality was good.

CARLISLE FAIR.—The continued fall in the price of sheep—from 3s. to 4s. a head for half-breds, 2s. to 3s. for Cheviots, and 5s. to 6s. for Cheviot ewes—from last year's quotations, kept buyers from purchasing largely. Up till three o'clock very few sales were effected. At about four o'clock most of the lots left the ground unsold, holders having got well drenched with the rain, and the appearance of the animals was anything but improved. The show of cattle was not large, and the numbers exhibited show a falling off from last year, especially in black stock. There were also fewer cross-bred animals shown, and those offered met a dull inquiry. Scarcely any Ayrshire beasts offered, but a good show of milk and calving cows. Highland cattle not much sought after; and we believe, without any exception, that scarcely one changed hands. Irish cattle met a dull inquiry, among which were some good bullocks, but they found no buyer. The following are the numbers shown, and the prices current: 180 black cattle, selling from 6*l.* 10s. to 9*l.*; no stirks offered; 250 cross-bred bullocks, 9*l.* 10s. to 16*l.*; 20 Ayrshire heifers, 5*l.* 15s. to 7*l*, and 6 do. cows, 8*l.* 10s. to 9*l.* 15s.; 40 milk cows, 9*l.* to 14*l.* 15s.; 40 Highland stots, 2*l.* to 3*l.*; 30 do. heifers, 5*l.* 10s. to 7*l.* 10s.; 40 short-horned bullocks, 10*l.* to 15*l.*; 300 Irish heifers and bullocks, 6*l.* to 9*l.* 15s. The show of horses was a very poor one—there being no first-class animals offered of any breed—the principal stock being secondary and inferior cart-horses, which ranged from 20*l.* to 35*l*; cart colts and fillies, of which there was about 20, selling from 30*l.* to 32*l.*, and ponies from 10*l.* to 15*l.* 10s. each. It was a very slow market, and few animals changed hands.

COLCHESTER FAIR.—Trade was duller than had been known for many years. In the horse market Mr. W. Martin, of Cattawade, showed 50 cart-horses and colts, the former averaging from 25*l.* to 40*l.*, the latter from 25*l.* to 35*l.*, some of which, with a few nags, were disposed of. Mr. Holden, of Colne, showed 40 cart-horses, from 25*l.* to 40*l.*; Mr. Keys, of Heybridge, 30 cart-horses at the same price; Mr. Roofe, of Colchester, 15 cart and nag horses, and a hunter, which he informed us realized 70*l.*; Mr. Tiffin, of Layer, 9 nag horses, 15*l.* to 20*l.*; Mr. Patten, of Colne, 15 to 20 nag and cart horses, from 30*l.* to 40*l.* Good omnibus and cab horses asked from 20*l.* to 25*l.*, and good nags from 35*l.* to 45*l.* Mr. W. Fenner, of Colchester, showed a drove of 56 Welsh colts, from 6*l.* 10s. to 20*l.* Several droves of ponies were also shown by gypsy horse-dealers. Of beasts, the price of Herefords averaged from 12*l.* to 14*l.*, shorthorns 9*l.* to 18*l.*, Welsh 6*l.* to 11*l.*, Scots 8*l.* to 14*l.*, Welsh calves 4*l.* 10s. to 7*l.* 10s. There were about 2,000 sheep and lambs, of which Mr. G. Folkard showed 19 score ewes and lambs, at 28s. to 36s.; Mr. R. Johnson, Myland, 300 ewes and lambs, 25s. to 36s.; Mr. Webb, Bentley, 18 score lambs and sheep, 25s. to 35s.

DALKEITH ANNUAL CATTLE MARKET, Oct. 19.—The stock was in excellent condition, but the numbers on the ground were fewer by nearly 2,000 than last year. The buyers were numerous, and from all parts of the country. The East Lothian farmers turned out well, but did not purchase so extensively as they have done hitherto. The demand for good cattle of all ages was kept up for two hours in the morning, but after that the market became dull, although up to its close sales continued to be effected. The stagnation that ensued about mid-day arose from a telegraphic message having been received from Wooler, reporting dulness in the market there. At the close the stock that remained unsold consisted principally of a few lots of inferior two-year-olds and stirks. The Irish stock was rather a large show, and the quality of all ages good. The three-year-olds brought from 12*l.* to 14*l.* 10s., and two-year-olds from 9*l.* to 10*l.* Stirks 6*l.* to 9*l.*, being a good kind. At the close of the market there were a few inferior beasts of this kind left unsold, and it was allowed that upon an average three-year-olds and stirks would be 20s. a-head above last Falkirk tryst. The show of draught horses was large, the quality of the stock was good, and the demand was brisk. Mr. Henderson, dealer, Edinburgh, sold several draught horses at from 30*l.* to 45*l.* Messrs. Gray and Wilson, dealers, Edinburgh, sold a good number of the same kind at from 30*l.* to 40*l.* Mr. Edgely, dealer, Gilmerton, sold very extensively in the draught line at prices similar to the above quotations. Messrs. Youl, Given, M'Kinlay, and the other Glasgow dealers, bought extensively, more particularly amongst heavy draught horses for jobs going on in the west. Saddle and harness horses were not such a good show as might have been expected, from the fact of the jaunting season being over, and what was shown deteriorated about 5 per cent. in price from last Tuesday, at Falkirk.

DEVIZES FAIR.—Sheep were in very large supply, and trade exceedingly dull. Ewes met a very slow and hanging sale, at from 30s. to 36s. a-head; and lambs at from 20s. to 30s. Horned cattle were generally of a rough and inferior character. Beef was in short supply, and realized from 10s. to 11s. a score. There were a great many horses, and the sale very dull. Sheep were from 5s. to 7s. a head lower than last year.

GLOUCESTER MONTHLY MARKET was well attended, and there was an unusual quantity of stock. The attendance of purchasers, however, was not equal to the supply, and business generally was flat. Many pens of sheep returned unsold, consequently prices generally were in favour of the buyer. Fat cattle fetched from 6d. to 6½d.; sheep, 6½d. to 7d. per lb.; pigs, 8s. to 8s. 6d. per score.

HAWICK TRYST.—The show was fully equal to, if not over the average, the kinds exposed being principally two year olds and yearlings. A few old horses were shown, but the number is so small that the prices realized can scarcely be considered as evidencing the state of the market. The sale was dull, and the market a slow one throughout. Sellers demanded old prices, while buyers were expecting to get their wants supplied at a considerable reduction. At four o'clock comparatively few sales had taken place, and a good many animals had left the ground unsold. The fall from last year's prices is variously estimated at from 5 to 10 per cent., but on the average 8 per cent. may be named as the rate at which they have declined. The demand was good for first-class animals, but the secondary beasts were little inquired for. Mr. Mitchell, dealer, showed a lot of thirty-two young horses, and got for his two year olds £30 to £40, most of them inclining more to the former than the latter price. Geldings brought £22 to £25. Mr. Foster, dealer, showed thirty horses, and sold two year olds at prices varying from £25 to £34; geldings bringing £15 to £23. Mr. Wilson, Midshiels, bought one of the best horses on the ground for £35—£1 back. CATTLE.—Mr. Campbell, dealer, showed a number of lean shorthorn stirks, for some of which he got £8 and £8 10s. £12 5s. was got for some two year olds; and Mr. Elliott, Cotterscleuch, received £10 for another lot of the same class. The show of cattle was very small, comprising Shorthorns and a few Highland cattle, and the greater part remained unsold. A small lot of lambs was also on the ground, but failed to meet with a purchaser.

The prices of cattle were similar to those realized at recen markets.

HEREFORD FAIR.—The supply of stock was not so large as we have seen at corresponding fairs in former years, but the quality was excellent, and the attendance of buyers from a distance was very large. The gradual and general decrease in the price of feeding stock which has pervaded other large markets for the last few weeks made itself felt here, and there was a depression upon active business, unless transacted at a lower figure than has lately ruled in the stock market. Fat beasts were worth barely 6s. 6d. per stone, and many were sold in lots at a less price than that. The price of lean stock was of course regulated by this standard, and some large lots changed hands for transmission to a distance. But if a comparative amount of dulness prevailed in the trade for feeding stock, the same could not be said of the transaction for breeding animals of both sexes. Some exceedingly high prices were obtained for pure-bred beasts belonging to breeders who have achieved a name for their prime cattle, and a few instances will prove this beyond a general statement. Mr. Rea, of Monachty, sold one of the magnificent 2-year-old prize heifers exhibited in class 7 of the show, for £100; and Mr. Thomas Rea, of Westonbury, son of the former, obtained £100 for his seven months old bull. Mr. Perry, of Cholstrey, realised £105 for his young bull which gained the first prize; and £50 for the own sister—to go to Melbourne, Australia; the prize bull of Mr. Monkhouse, of The Stow, was also sold for £100 to go to Australia. The sheep fair was very far from large, but some very fine ewes and wethers were sold at prices ranging from 6d. to 7d. per lb., in proportion to their fatness for the butcher's knife. There very few pens of breeding sheep. The business in the pig market requires no special remark. Stores and suckers went very cheap, but a superior price was gained for those which exhibited the nearest approach to "good breeding." The show of useful draught horses and mares was unusually numerous, and there was a considerable number of promising foals of a heavy character. The business done in this department was both brisk and extensive; but the value of cart colts, especially suckers, was more than fifty per cent. lower than they readily realised at our last October and Candlemas fairs. There was the same absence of a goodly muster of carriage and hack horses which we have noticed and deplored on many previous occasions; only a few good animals of this kind were offered for sale, and even those with difficulty found purchasers, for people have almost left off looking for first-rate hacks at Hereford.

ISLEY FAIR.—The supply of lambs was short, and there being a good demand an advance of 1s. per head took place. In sheep the supply was larger, and the trade not so good, but prices underwent scarcely any alteration.

LEOMINSTER FAIR was tolerably well attended, the state of the weather considered. Prices of all kinds of stock were lower.

MARKET HARBOROUGH FAIR.—Unbroken young horses were but little sought after, but those ready for work met with a better sale. Good useful horses were bought on easier terms, being £4 or £5 per head less than formerly. There was a great number of beasts for sale, especially stores. The trade was not over brisk, though many were sold. The sheep fair was a very large one, there being more than 2,000 penned. The trade was very dull, and many were taken out of the pens again unsold. The very unfavourable state of the weather no doubt caused the fair to be duller than usual.

MELTHAM FAIR.—The stock of horned cattle exhibited was moderately large, and a few exchanged hands at rather declining prices. Sheep were plentiful, and a tolerable number were sold.

MITCHELL FAIR was very well supplied with sheep, which in the early part of the day met a dull sale, but ultimately nearly all were disposed of, though at prices considerably lower than at the same fair last year, and from 3s. to 4s. per head less than at Summercourt, on the 27th ult. There was a good show of cattle, principally in the hands of the dealers, the demand for which was dull, and those sold were on easier terms than at late fairs.

MUCH WENLOCK FAIR.—The quantity of store stock sent was large; but the attendance of buyers, though not small, especially considering the weather and the number of fairs held in other places, did not correspond, and a great deal was in consequence sent back. Fat stock, however, was not very large. Beasts sold at 6d. and a shade higher, and sheep 6½d. to 7d. Cows and calves were moderate, £14, £15, and £16, or a shade or so higher, for good animals. It is seldom that a finer stock of pigs has been sent to this fair; prices continued very low.

MUIR OF ORD MARKET was a very dull one, and few transactions occurred. Some lots of the latter order were sold at fair prices; but the amount of business done was comparatively small, and there was little desire to come to the terms offered by buyer or seller. Many lots were unsold, the farmers hoping for better bids. A lot of very fine Cheviot wedders were sold by Mr. John Davidson, Comer Muir, Strathglass, at 27s.; Mr. Ross, Kinnahaird, sold half-bred clipped hogs at 28s. a-head, and two-year-old dinmonts (shots) at 32s.; Mr. Valantyne Macrae, Carnoch, sold a lot of Cheviot ewes at 14s. 9d.; Mr. Macrae, Conchra, sold to Mr. Tait, Keppoch, Kintail, a lot of Cheviot ewe lambs at £11 per clad score; a fine lot of 300 lambs were purchased by Mr. Maclennan, Tomich, at a price stated at 10s. or 11s. The market was dull for ordinary cattle, though good cattle fetched fair prices. The price of stock was allowed to be 10 per cent. down. Many lots of Caithness and other cattle were unsold, some never having had a bid. Mr. Forsyth, Dingwall, sold a lot of three-year-old Skye crosses at £9 10s., also a lot at £9; Mr. Anderson, Kildrummie, bought a lot of six-quarter-old crosses at £7; Mr. Maclennan, Tomich, a lot three-year-old crosses at £14 14s.; Mr. France bought a lot of two-year-old crosses, at £9 7s. 6d.; the manager for the Duke of Portland bought a lot of Highland stots at £6 15s.; Mr. Chisholm, Auchnacloigh, sold a lot of queys at £6 12s. 6d.; Mr. Robertson, Erchless, sold six-quarter-old stots, crosses, at £8; Mr. Colvin, Essich, bought a prime lot of six quarter old Highlanders at £7 7s.

NORWICH: ST. FAITH'S FAIR.—At this important fair the show of Scots was good, both in condition and quality, some lots being nearly fit for the butchers. The numbers were about 800. Sales commenced slowly; the high prices, combined with the low price of wheat and the general deficiency of the turnip crop, prevented many from purchasing; but before the close of the fair more than half were sold, at from 5s. to 5s. 6d., the primest lots 6s., per stone of 14lbs. Of shorthorns, Devons, and Irish, there was a good falling off in quality and condition; although the number exceeded last year; still it must be remarked that the preference throughout the day was in favour of the Scots, considerably more than half the shorthorns being left unsold at the following prices: 4s. to 4s. 6d.; forward in condition, 5s. per stone. We have great reason to fear that the sales throughout the day leave no profits to the owners and dealers. In the horse fair there was so little business done amongst the dealers, in consequence of the few good ones on offer, that prices were at a considerable reduction. On Thursday there was a tolerably good show, but few buyers. Prices equal to the fair day.

SALISBURY FORTNIGHTLY MARKET.—We had an abundant supply of all descriptions of stock. The beef trade was very dull; good serviceable brought 10s. to 11s. per score. The demand for prime mutton was good, and 7½d. per lb. was realized for the best quality. There was a fair supply of live pigs, with no alteration in value; dead pigs from 8s. 9d. to 9s. 3d. per score.

STRATFORD-ON-AVON FAIR.—There was a small show of beasts, but of stores a large number, which met with a dull sale owing to the wet weather, yet there were many buyers. Beef fetched 5½d. to 6½d. per lb. Not more than 1,000 sheep were penned: ewes brought 5½d. to 6½d., best wethers 6½d. to 7½d. per lb.; lambs 18s. to 24s. each; pigs, fat for bacon, 9s. to 9s. 6d. per score. There were some fine horses shown, few changed hands at high prices.

WELSHPOOL FAIR.—There was a very good attendance of dealers, many of whom came in on the previous evening, and a good show of cattle. Beef sold readily at 5½d. and 6d., mutton 6½d. to 7d per lb. There were some very good draught horses, which sold at very good prices. At the pig fair, all that could soon be converted into bacon were bought up directly, but no one seemed to want little pigs.

WINCHESTER FAIR.—The supply was very short, being about 8,000 less than last year, when the numbers were somewhat in excess of an average; but the present deficiency was nearly one-fourth of the usual quantity penned. Business commenced by sellers asking high prices, which the buyers would not entertain, and sales for lambs were particularly dull; for wethers rather better; but ewes were most in demand, for which a tolerably brisk trade was done. The attendance of dealers from a distance was not numerous, and the fair closed with a clearance at no quotable change of the prices from the late Weyhill fair. Ewes realized from 34s. to 38s., lambs 23s. to 37s., wethers 35s. to 46s. A pen of ewes belonging to Mr. Digweed, of Steventon, made 44s. per head, and a pen of lambs belonging to Mr. Frederick Bailey, of Candover, fetched 44s. per head. There were several fine lots of ewes, lambs, and wethers exhibited by the Messrs. Pain, Courtney, Canning, Fitt, Bailey, and others, which sold at high figures. The show of cattle was limited to a few in-calf heifers of inferior quality, for which there appeared to be little demand.

WOOLER FAIR.—There was a large number of both cattle and sheep, and an exceedingly dull slow sale. Three-year-old cattle brought £12 to £16 10s., two-year-olds £9 to £12, and stirks £5 to £8 a-head. There was a very good lot of heifers, for which was asked £13 10s.; but late in the day we saw them still unsold. The prices obtained show a reduction, compared with last year, upon three-year-olds of £2 a-head, upon two-year-olds of 20s. or 30s., and amongst stirks there was not so great a reduction, at least not equal to the decline amongst older cattle. The trade amongst sheep was very inactive; the large prices of last year still haunting the minds of sellers, made them unwilling to submit to the prices offered, so that many lots left the ground unsold. Half-bred wethers brought 32s. to 36s. a-head, and Cheviot wethers, of which there was a large show, brought 25s. to 30s. Some lots of half-bred dinmonts, which brought 42s. and 44s. last year, were sold this at 35s. and 36s., and there was a similar decline amongst Cheviots; so that sheep for feeding may be quoted at 7s. a-head below last year's prices. The ewe trade was dull, and a falling off from the prices lately given.

VIRGINIA (Co. Cavan) FAIR.—Best beef on show 50s. per cwt.; inferior beef down to 35s. per cwt. The demand for dry cattle was pretty brisk, except the animal were mediocre or inferior altogether. The prices were, however, decidedly down. Wether mutton cannot be quoted at a higher figure on this occasion than 5½d. per lb.; lambs (store) from 25s. to 30s. each. In the pig fair the best bacon exhibited brought 45s. as a top figure, and pigs retrograded below 40s. per cwt. Store pigs sold from 30s. to 50s. each, and sucks and weanlings from 7s. 6d. to 14s. per head. All sold out early. A goodly number of long-tail horses were cantered about, and fetched from £15.

IRISH FAIRS.—TUAM: The supply, though very large, does not come up to that of last year, but the stock are still pouring in. Prices for any lots as yet purchased have a downward tendency. From 20s. to 27s. 6d. under last year for forward stock, and a proportionate decline in other descriptions of cattle. The supply of stores is, generally speaking, inferior, and except for the Dublin markets this kind of stock is what is most sought after here at this time.—DUNDALK: Best beef sold at 55s. per cwt., except in a few extreme cases where it had reached a higher figure. Second class beef sold from 45s. to 50s. per cwt., and inferior from 40s. upwards. There was a very excellent show of good wether and ewe mutton, with a large quantity of good store sheep. The prices, as taken from the victuallers' calculations, are 6½d per lb. for wethers, and ewe from 5½d. to 6d. There were little or no bacon pigs, but plenty of animals ready to be made up by those who buy them. Some prime weighty porkers, intended for the English markets, went to fully 44s. per cwt., and perhaps to 45s.; the general run, however, was 40s. per cwt. A great number of stores, and the demand active in the extreme. An abundance of small pigs were shown in creels, and many of them bought up for exportation. The prices may be taken as £2 to £2 10s. for stores; some heavy ones went to £3 per head. For weanlings 15s. to 30s. each was received.

AXMINSTER Cheese Fair was not brisk, sellers declining give way. Household, or skim, was sold from 20s. to 26s. per cwt.; raw milk from 45s. to 60s.

GLASGOW MARKET (Wednesday last.)—There were eight carts of Cheese in the bazaar, which were bought up at about last week's prices, although the market was dull; and ten tons passed the weigh-house scales. The following were the prices:—New, 42s. to 45s.; prime early-made parcels, 48s.; skim, 21s. to 23s. per cwt.

MANSFIELD CHEESE FAIR was well attended, owing partially, there can be no doubt, to the very favourable state of the weather. There was a large show of cheese, and prices were high, best dairies fetching 70s. and upwards. A good clearance was made.

HEREFORD CHEESE FAIR was large, and the demand brisk; family cheese 24s. to 30s. per cwt., seconds 42s. to 50s., and best 56s. to 64s.

MARKET HARBOROUGH CHEESE FAIR.—The quantity pitched was not very large, the larger amount being brought in by the factors. There were no large dairies brought in by the farmers. The prices varied from 60s. to 75s. according to quality.

GLOUCESTER CHEESE FAIR.—The supply of cheese was about 150 tons, or about 100 tons less than at the previous market. Although the quantity was not large for the season, yet the trade was dull, and a reduction in the rates had to be submitted to. Thick and loaves, 66s. to 72s.; doubles, 60s. to 64s.; best singles, 56s. to 63s.; seconds, 42s. to 52s.; and skim, 20s. to 30s. per cwt. About 15 tons, principally of secondary and inferior descriptions, left the market unsold.

BISHOPSTOKE CHEESE MARKET.—There was a good supply, the quantity exceeding 300 tons. The trade was not animated; at the close of business about half remained unsold. Prices may be quoted: Half-cowards 48s. to 54s., doubles 54s. to 58s., Somersets 62s. to 68s., Cheddar 72s. to 80s. per cwt.

BELFAST, (Thursday last.)—Butter: Shipping price, 98s. to 100s. per cwt.; firkins and crocks, 10d. to 11d. per lb. Bacon, 56s. to 60s.; Hams, prime 80s. to 90s., second quality 60s. to 66s. per cwt. Prime mess Pork, 80s. to 85s. per brl.; Beef, 120s. to 130s. per tierce; Irish Lard, in bladders, 72s. to 76s.; kegs or firkins, 64s. to 66s. per cwt. Pork, 44s. to 48s. per 120 lbs.

PRESENTATION OF A TESTIMONIAL TO MR. J. FOWLER, JUN.—At a recent meeting of the Lavenham Farmers' Club, the members signalised the anniversary by the presentation of a silver tankard, the inscription upon which tells its own story:—

> "To John Fowler, Jun., Esq.,
> From the Lavenham Farmers' Club,
> In token of the appreciation of its Members
> of his successful efforts for the
> accomplishment of Steam Culture.
> May 28th, 1858."

Major Parker, in presenting the cup, said: "Some time since, when the subject of steam-power as applied to agriculture first came into notice, the members of the Club, seeing that Mr. Fowler had not received that acknowledgment from higher quarters which his services in the cause of agriculture deserved, resolved to present him a memorial, in recognition of *their* approbation of his successful efforts in accomplishing steam agriculture. The Royal Agricultural Society was then backward to do so. They were only anxious to stamp with their approval what had since been acknowledged by the Royal Agricultural Society." Mr. Fowler duly responded to the compliment, and dwelt on the advantages of steam-power, more especially when employed on heavy land.

The members of the Long Sutton Agricultural Society have "agreed with acclamation" to present a testimonial to Mr. John Clarke, who for two-and-twenty years has acted as treasurer and secretary to the Association, and "contributed so much to its prosperity and success." Mr. Clarke's labours as a judge, both of stock and machinery, at so many of our great agricultural meetings, make his worth known far beyond the limit of the Long Sutton Society; and many others than mere neighbours will no doubt be anxious to evince their appreciation of his services.

REVIEW OF THE CORN TRADE

DURING THE PAST MONTH.

An increased though still superficial supply of rain during the month has greatly facilitated all tillage, and enabled farmers to get a large breadth of land in fine order for autumnal wheat sowing, which in some localities has already commenced very favourably, but a still further fall would be very serviceable generally, as cattle are with difficulty supplied : many springs have ceased flowing, and the streams continue low ; but let us hope that the fruitful showers will yet come in their season, and that all things will work well. The dryness of the meadows has certainly been favourable to animal health. The wheat trade through the month has undergone but little change, the symptoms of improvement which began to appear having again subsided from the continuance of supplies beyond the ordinary wants of millers, and the total absence of a speculative demand to carry off any temporary excess. Imports have declined, but it is yet too early in the season to produce any effect, as our own stores have undergone no sensible diminution since harvest, with the help of the over-left abundance of last year, followed by excessive imports.

The seed demand, with a partial withdrawal of supplies by farmers, has occasionally given tone to the trade ; but with all markets readily accessible by rail, millers have been wary, as the manufactured article does not always find a ready sale even at low prices, and is always dangerous to keep in this country. Consumption is reported to be lessened by the dull state of trade; but we apprehend the truth is, that less is "wasted" now from the shortness of pay, rather than that men go much short of food, as parochial resource is a native right which necessity will not fail to claim. The opinion, however, gains ground that we are at about the lowest as the Baltic ports may be expected ere long to close, and the long voyages and high freights from the Black Sea will be a check to the freedom of imports, and a turn after Christmas, if not earlier, will eventually reward the patience of holders. There are indeed calculations that America will have power to send us large quantities, but we have so often seen accounts from this quarter fallacious, and the prices at New York for fine qualities are so on a par with our own, viz., 45s. to 47s. per qr. from the comparative scarcity of these sorts that the estimated surplus of 4,000,000 qrs. may be reduced to one-fourth the amount, and even then the quality prove below the requirements of millers, and Canada we know to be very deficient. France has been unsteady, and the prices shaken by the meddling of its Government; but that country now seems gradually emerging from the decline produced by a resumption of the sliding scale; and on a review of her comparative imports and exports, we find the balance of the latter, after the productive season of 1857, from 1st of August then, to the 31st of July 1858, to be only 700,000 qrs., and as the last crop was only a doubtful average, we think the period of her low prices nearly at an end, while Spain and Portugal must import all through the season, and the interior of Germany, Poland, and some Russian governments will require aid. The range of prices abroad is as follows :—At Paris the best wheat is about 41s.; at Bordeaux, 42s. per qr. In Holland prime Zealand is worth 46s.; Louvain, in Antwerp, 42s. to 44s. per qr. (63 lbs.). Holstein at Hambro', 46s.; new Danish 62 lbs. 40s. 6d. At Cologne 45s. 9d. was paid: fine high-mixed at Danzic 50s. to 52s. per qr. At Galatz the rates for best quality were about 30s. per qr. Ghirka wheat at Odessa 37s., soft Polish 39s. per qr. At Berdianski soft wheat 34s. 6d. At Trieste 63 lbs. wheat was worth 40s.; at Seville mixed 53s. per qr.

The first Monday of the month at Mark-lane commenced on a moderate English and good foreign supply. From Kent and Essex, in the course of the morning, there was nothing beyond an average show; but millers were very indifferent buyers, picking out only the best parcels at previous rates, so that factors had much undisposed of at the close of the market. Foreign factors kept up the rates of fine qualities, and the business was but retail. In the country, supplies generally were reported to be less abundant—farmers not being disposed to send much at present rates, and those places that had abundance found a more ready sale at fully the previous terms; but very few noted a positive advance, though Newcastle and Leicester quoted 1s. per qr. improvement. The Tuesday's business at Liverpool was a counterpart of the previous day in London—none but the finest samples of wheat finding placement at full prices, and Friday was still more decidedly in buyers' favour. The second

Monday opened on very short arrivals of English wheat and rather less foreign. The near counties during the morning sent up but few samples. These circumstances, together with the improved feeling in the country, influenced millers, who bought more freely, but without paying higher prices. The foreign trade evinced more tone; but the high prices insisted on, restricted sales. This better report from London found its response in country markets, and decided some farmers on withdrawing their samples for further improvement. The supply at Hull was deficient, and 1s. more readily obtained; an equal advance being realized at Boston, Spalding, Wolverhampton, Newark, Newmarket, and Newbury; while Barnsley and Lynn were 1s. to 2s. higher. The reports on Saturday were mostly of this character: Liverpool, however, at neither of its markets evinced any change, though there was a fair attendance on Tuesday. The third Monday showed an increased quantity of English wheat; but the foreign supply was small, and very little fit for milling purposes. About an average show of samples appeared from Kent and Essex; and, with a somewhat improved tone, picked lots brought 1s. per qr. more, occasionally; and some factors reported a general advance to this extent; but, as the week wore on, they found they could not substantiate their statements, the dulness returning again, and their inferior samples not being disposed of. Many of the country markets, however, continued the upward movement, reporting 1s. advance; Hull again being dearer, as well as Birmingham and Gloucester: but the week generally closed less buoyant, Derby and Lincoln being 1s. per qr. down. Liverpool prices were steady all through the week, its telegraphic communication with London apparently producing more assimilation than formerly. The fourth Monday had but few samples from Kent and Essex during the morning; but the supplies of the previous week being improved, and not quitted till late, the short arrival from the near counties produced no effect; and the day was thoroughly dull. Those who in the week previous had reported 1s. per qr. advance, now held it to be lost; and the prices of a fortnight back were difficult to realize. Still, with so little fine wheat showing, the market could hardly be reported decidedly cheaper for English, though in the foreign trade 1s. less was taken; and the Kentish stands reported a decline of 1s. to 2s. per qr., in order to get clear. The supplies for four weeks, in town, have been as under—viz.: 28,517 qrs. English, and 49,431 qrs. foreign wheat, giving a weekly average of 7,129 qrs. English, and 12,358 qrs. foreign, or a total supply of 77,948 qrs., against 75,384 qrs. in September. The imports into the United Kingdom for September were 306,813 qrs. wheat, and 196,184 cwt. flour. The imports for the last four weeks, into the principal ports of Great Britain in wheat and flour, ending Oct. 13, were 210,814 qrs. Both these show a diminution in the foreign imports, as compared with the month previous, in the latter of 45,560 qrs.; in the former, as compared with August, of 66,961 qrs., and 47,815 cwts. The rate of sales, as noted weekly, has decreased 21,910 qrs. in four weeks. The general averages make a decline in the same time, of 1s. 10d. per qr.; those of London being only 1s. 3d. per qr.

The flour trade has been remarkably steady throughout the whole month, 43s. having been the highest town price, while Norfolks have kept at about 30s. per sack; the fourth Monday inclining to 1s. per sack less. The foreign imports have been very limited, there being a great want of fine American; but the prices in New York being above ours, there seems no immediate prospect of any supplies. The inferior now in store, though not in quantity, has been quite neglected, not bearing comparison with our country samples. Round-hoop Ohio, at New York, is worth 22s., southern 23s., Canadian 26s. 6d.; while our quotations here are only 25s. per brl. The best flour at Santander is equal to our top price, viz., 43s. per 280lbs. The imports during the four weeks have been in country sorts 66,945 sacks, with 4,402 brls. 2,308 sacks foreign; showing an increase as compared with the previous month of 5,914 sacks English, and a decrease of 11,250 brls. foreign.

The barley trade exhibits some contradiction in its prices. Now that malting sorts have come into demand, from the weather being colder, for anything really fine 45s. to 46s. has been paid; while for grinding sorts of foreign as low as 23s. has been accepted; but the middling qualities have been most irregular and depressed, being in favour with neither maltsters nor distillers, and these have given way 2s. to 3s. per qr. since the supplies have been free. The supplies in four weeks have been 13,220 qrs. English, with 67,098 qrs. foreign; showing an increase of 8,244 qrs. English, and 23,143 qrs. foreign. There seems little doubt but high prices will be realized for fine malting all through the season; but while free imports from the Black Sea and Baltic continue, there seems no prospect of much improvement for other qualities, though they can hardly be cheaper.

The malt trade has been steady all through the month, and firm for fine old.

The oat trade, notwithstanding the successive reduction of price, has still farther declined, say in old sorts 2s. and new 3s. per qr., in consequence of the very free imports, chiefly from Russia, but lately from all ports in the Baltic. The first Monday had a large supply, and was then cheaper, for new sorts 6d. to 1s. per qr.; the second was steady, though plenty was reported; the third was slow, though there was a pause in the imports; but on the fourth, with a supply of 115,000 qrs., and about thirty more vessels up not reported, prices were again lowered fully 1s. to 2s.: much remaining unsold must of necessity go to the store. This arrival, however, may be the last of magnitude this season, and we should not be at all surprised to see the market take a sudden turn upwards should the imports fall off. Ireland will be certainly in less condition to send her usual quantity, with a great increase in horses and decrease of growth. The four weeks' imports have been in English qualities 3,802 qrs., Scotch 3,583 qrs., Irish 14,309 qrs., and foreign 243,100 qrs., making the total weekly supply 66,198 qrs. against 48,501 qrs. last month.

Beans, in the course of the month, have given way 2s. per qr. in new sorts and fully 1s. in old, their relatively high price, as compared with other grain, having led to substitutes, and bringing supplies more plentifully to market. The quantity of English received during four weeks has been 3,614 qrs., with 12,434 qrs. foreign, making an average of 4,011 qrs. weekly, against 2,703 qrs. in September; France having contributed freely to this amount; but the fall in our markets will, doubtless, check imports thence. Old English are scarce, but good French make fair substitutes.

Peas, also, have given way, excepting maples, scarcely any of which have come to market, perhaps from their having more extensively failed than the other kinds. Very fair duns can now be had at 40s., which recently were worth 44s.; and white boilers, from the large imports of foreign before the time of large consumption, have been reduced fully 2s. per qr., being procurable at 42s. Blue have been so scarce that they have brought extravagant prices, on which no dependence can be placed. The arrivals in English in four weeks have been 2,144 qrs., in foreign 10,029 qrs., giving a weekly average of 3,043 qrs., against 983 qrs. last month.

Linseed has been in increased supply all through the month, giving an excess of 27,051 qrs. over September; and the consequence has been a reduction in the rates of 2s. to 3s. per qr., while cakes have only been a less ready sale. As foreign markets are declining, we may yet see the rates easier, which have been kept up at an artificial height ever since the Russian war.

The seed trade generally has been calm. Dealers in cloverseed have kept aloof from foreign offers as yet, determined first to know their actual wants, though the English crop is said to be very deficient in places, through blight; still, some parts will have fine red seed. Trefoil also has been quiet. Canaryseed has fluctuated greatly, finally sinking down to about 80s. per qr. Hempseed and mustard have been dull. English winter tares, though scarce, have been checked by French imports, procurable at lower rates—say 10s. per bushel, or under. Rapeseed, coriander, and carraway have been steady, with little change.

CURRENCY PER IMPERIAL MEASURE.

				Shillings per Quarter.	
WHEAT, Essex and Kent, white	40 to	48	new	41 to	48
,, red	38 to	44	new	39	44
Norfolk, Linc. and Yorks., red	39	43	new	40	44
BARLEY, malting, new	— to	35	Chevalier, new	38	43
Grinding, new	26	29	Distilling	29	30
MALT, Essex, Norfolk, and Suffolk	58	66	fine	69	72
Kingston, Ware, and town made	58	66	,,	69	72
Brown	54	56		—	—
RYE, new	—	—		30	36
OATS, English, feed	20	26	Potato	26	33
Scotch, feed	20	26 28	Potato	26	32
Irish, feed, white	21	24	fine	25	30
Ditto, black	20	22	,,	—	23
BEANS, Mazagan	36	37	Ticks	36	38
Harrow	37	40	Pigeon	40	45
PEAS, new, white boilers	40	42	Maple 42 44 .. Grey	39	40
FLOUR, per sack of 280lbs., Town, Households 37s., fine				40	43
Country	30	32	Households	30	35
Norfolk and Suffolk, ex-ship				29	30

FOREIGN GRAIN.

				Shillings per Quarter.	
WHEAT, Dantzic, mixed	46	—	high do. — 50 extra	—	52
Konigsberg	40	47	,, — —	—	—
Rostock	45	—	fine 46 old 48	—	—
American, white	43	50	red 42 45	—	—
Pomera., Meckbg., & Uckermrk, red	42	46		—	—
Silesian, red	42	44	white	43	46
Danish and Holstein				40	43
Russian, hard	39	40	French 42 43 white	42	44
St. Petersburg and Riga				40	42
Rhine and Belgium				—	46
BARLEY, grinding	22	26	Distilling	28	30
OATS, Dutch, brew, and Polands	23	28	Feed	22	24
Danish and Swedish, feed	22	25	Stralsund	22	25
Russian				20	22
BEANS, Friesland and Holstein				36	40
Konigsberg	36	39	Egyptian	35	36
PEAS, feeding	39	40	fine boilers	40	42
INDIAN CORN, white	34	34	yellow	31	34
FLOUR, per sack, French	33	36	Spanish	—	—
American, per barrel, sour	20	22	sweet	24	25

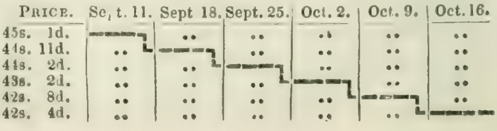
IMPERIAL AVERAGES.

FOR THE LAST SIX	Wheat.		Barley.		Oats.		Rye.		Beans		Peas.	
WEEKS:	s.	d.	s.	d.	s.	d.	s.	d.	s.	d	s.	d.
Sept. 11, 1858	45	1	35	2	25	7	33	9	45	9	44	7
Sept. 18, 1858	44	11	36	1	25	8	34	6	46	3	45	1
Sept. 25, 1858	44	2	36	6	25	1	32	7	45	9	43	10
Oct. 2, 1858	43	2	36	6	24	10	33	1	45	8	44	0
Oct. 9, 1858	42	8	35	10	23	7	32	7	44	2	44	7
Oct. 16, 1858	42	4	35	9	22	9	32	6	44	7	44	6
Aggregate average	43	9	35	11	24	7	33	2	45	4	44	5
Sametime last year	56	4	42	10	26	0	36	8	45	7	43	4

COMPARATIVE AVERAGES—1858-57.

From last Friday's *Gaz.*		s.	d.	From *Gazette* of 1857.		s.	d.
Wheat	105,383 qrs.,	42	4	Wheat	122,132 qrs.,	55	10
Barley	60,067 ..	35	9	Barley	65,252 ..	43	0
Oats	8,780 ..	22	9	Oats	10,786 ..	25	6
Rye	223 ..	32	6	Rye	932 ..	35	4
Beans	4,008 ..	44	7	Beans	5,251 ..	45	6
Peas	873 ..	44	6	Peas	2,207 ..	44	5

FLUCTUATIONS IN THE AVERAGE PRICE OF WHEAT.



PRICES OF SEEDS.

BRITISH SEEDS.

Trefoil, new	19s. to 21s.
Tares, Winter, new, per bushel	13s. to 14s.
Mustardseed, per bush., new 12s. to 14s., brown	10s. to 12s.
Coriander, per cwt.	14s. to 16s.
Canary, per qr.	80s. to 84s.
Linseed, per qr., sowing —s. to 70s...crushing	60s. to 64s.
Linseed Cakes, per ton	£9 10s. to £10 10s.
Rapeseed, per qr.	68s. to 72s.
Rape Cake, per ton	£5 10s. to £6 0s.

FOREIGN SEEDS, &c.

Cloverseed, red —s. to 52s., white	70s. to 85s.
Trefoil,	17s. to 18s.
Hempseed, small, per qr. Dutch	—s. to 38s.
Coriander, per cwt.	16s. to 18s.
Carraway ,,	42s. to —s.
Linseed, per qr., Baltic 56s. to 58s....Bombay	60s. to 62s.
Linseed Cake, per ton	£9 10s. to £11 0s.
Rapeseed, Dutch	62s. to 66s.
Rape Cake, per ton	£5 0s. to £6 0s.

HOP MARKET.

LONDON, Monday, Oct. 25. — We have no material alteration to note in our market since our last report. The demand continues active for fine samples of every description, but for second and inferior sorts the trade is heavy. Our currency is as follows:

Mid and East Kents	70s.	84s.	120s.
Weald of Kents	54s.	62s.	68s.
Sussex	48s.	54s.	60s.

Duty, £260,000. Mease & Wild.

POTATO MARKETS.

SOUTHWARK WATERSIDE, Monday, Oct. 25.

During the last week the arrivals have been very moderate. The trade is quiet, and no change in prices to note. The following are this day's quotations:—

French Whites	60s. to 65s.
Belgian Whites	50s. to 55s.
Essex and Kent Regents	70s. to 90s.
Dunbar	80s. to 90s.

BOROUGH AND SPITALFIELDS.

LONDON, Monday, Oct. 25.—We have no improvement to notice in the demand for any kind of potatoes. Coastwise and by railway the receipts continue on a liberal scale, and the imports since Monday last have been as follows: Rotterdam, 242 bags; Dort, 318 do.; Calais, 208 bags and 52 tons; Dunkirk, 573 bags; Harlingen, 125 bags 80 tons; Emden, 15 bags; Amsterdam, 9 bags; Boulogne, 62 do.; Ostend, 6 do.; Antwerp, 100 do.; Hambro', 75 do.; Harburg, 4 barrels; and Bremen, 6 do. Present prices: York Regents, 75s. to 90s.; Shaws, 55s. to 75s.; Kent and Essex, 75s. to 80s.; French, 60s. to 75s.; Belgian, 45s. to 60s., inferior 40s. to 50s. per ton.

COUNTRY POTATO MARKETS.—York, Oct. 16.—Potatoes sell at 6d. to 6½d. per peck, and 1s. 10d. to 2s. per bushel. Leeds, Oct. 19.—We had a limited show of potatoes, which sold readily at 7d. to 7½d. per 21lbs. wholesale, and 8d. to 9d. retail. Thirsk, Oct. 18.—Potatoes 6d. per stone. Richmond, Oct. 16.—Potatoes 2s. 4d. per bushel. Sheffield, Oct. 19.—Potatoes sell at 5s. to 8s. per load of 18 stones. Manchester, Oct. 21.—Potatoes 7s. to 9s. 6d. per 252lbs.

PRICES OF BUTTER, CHEESE, HAMS, &c.

BUTTER, per cwt.:	s.	s.
Friesland	112 to	116
Kiel	—	—
Dorset	116	120
Carlow	100	110
Waterford	102	110
Cork,	98	110
Limerick	96	104
Sligo	94	110
Fresh, per dozen..13s. 0d. to 16s. 0d.		

CHEESE, per cwt.:	s.	s.
Cheshire	60	74
Cheddar	60	80
Double Glouc.	52	68
HAMS:		
York	90	100
Westmoreland	90	100
Irish	—	—
BACON: Wiltshire, dried	64	66
Irish, green	56	62

ENGLISH BUTTER MARKET.

LONDON, Monday, Oct. 25.—We have now to contend against a very dull market; and prices for all, except the first quality, are quite nominal.

Dorset, fine	122s. to 124s. per cwt.
Ditto, middling	100s. to 102s. ,,
Devon	112s. to 114s. ,,
Fresh	11s. to 16s. per dozen.

COVENT GARDEN MARKET.

LONDON, Saturday, Oct. 23. — Trade is brisker than is was last week. Apples and Pears are plentiful. Lisbon Grapes continue to arrive in excellent condition. A few late Peaches may still be had. Barcelona Nuts fetch 20s. per bushel; new Brazils, 16s. do.; Spanish, 14s. do.; Almonds, 24s.; Walnuts kiln-dried, 20s. do. Filberts fetch 26s. to 35s. per 100 lbs. Kent Cobs are dearer, and the demand brisk; prices higher. New Oranges have arrived from Madeira. Among Vegetables are some nice Cauliflowers. Peas are now over. Greens are plentiful, French Beans scarce. Potatoes realise some advance on last week's prices; many are diseased. Green Artichokes fetch from 4s. to 6s. per dozen. Cucumbers plentiful. Cut flowers chiefly consist of Orchids, Gardenias, Heliotropes, Geraniums, Violets, Mignonette, Heaths, and Roses.

FRUIT.

	s.	d.	s.	d.		s.	d.	s.	d.
Apricots, per doz.	0	0 to	0	0	Pineapples, per lb.	4	0 to	6	0
Apples, per bushel.	2	0	5	0	Currants, black, p. ½-s.	0	0	0	0
Oranges, per doz.	0	0	2	6	Do. red	0	0	0	0
Melons, each	1	0	2	0	Do. white	0	0	0	0
Filberts, per lb.	0	6	0	0	Lemons, per dozen	1	0	2	0
Cobs per lb.	0	6	0	0	Pears, per dozen	0	6	2	0
Grapes, per lb.	1	0	4	0	Peaches, per dozen	3	0	8	0
Nectarines, per dozen..	0	0	0	0	Figs, per doz.	0	0	0	0

VEGETABLES.

	s.	d.	s.	d.		s.	d.	s.	d.
Cauliflowers each	0	4 to	0	6	Tomatoes, per half-sieve	0	0 to	0	0
Broccoli, per bundle	0	0	0	0	Leeks, per bunch	0	2	0	3
Greens, per doz. bunches	2	0	3	0	Celery, per bundle	1	0	1	6
Seakale, per punnet	0	0	0	0	Shallots, per lb.	0	6	0	8
French Beans, per sive..	0	0	0	6	Garlic, per lb.	0	6	0	8
Asparagus, per bundle..	0	0	0	0	Lettuce, cab., per score..	1	0	1	6
Rhubarb, per bundle	0	9	0	0	Do., Cos, per score	1	0	1	6
Potatoes, per ton	50	0	90	0	Endive, per score	1	0	1	6
Do. per bush.	2	0	2	9	Radishes, turnp, per doz.	0	0	0	0
Do. per cwt.	4	0	6	0	Horseradish, per bundle.	1	6	4	0
Do. New, per lb.	0	0	0	0	Mushrooms, per pottle..	2	0	2	6
Carrots, per bunch	0	2	0	4	Parsley, per 12 bunches.	2	0	4	0
Turnips, per bunch	0	4	0	6	Basil, green, per bunch...	0	0	0	0
Spinach, per sieve	1	6	2	0	Marjoram, per bunch	0	0	0	0
Cucumbers, per dozen ..	1	0	4	0	Savory, per bunch	0	2	0	4
Beet, per dozen	1	6	2	0	Mint, green, per bunch..	0	2	0	4

LEADENHALL LEATHER MARKET

CROP HIDES.

ENGLISH

lbs.	lbs.	d.	d.
28 to	35	14 to	16
36	40	15	17
40	45	16	18½
46	50	17	19½
50	55	17	20
56	60	18	21

BUTTS.

ENGLISH.

lbs.	lbs.	d.	d.
14	16	16	18
17	20	16	19
21	24	18	20
25	28	19	22
29	32	20	23
33	36	20	23

FOREIGN.

14	16	—	—
16	20	16	18
21	24	16	18
25	28	15	19
29	32	16	19
33	36	16	19
36	45	14½	23
45	50	16	24

OFFAL.

	d.	d.
English Shoulders	13	17
Do. Cheeks and Faces	6	10
Do. Bellies	9½	11½
Do. Middles	12	13
Foreign Shoulders	13	15
Do. Necks	10	12
Do. Bellies	8	10
Do. Middles do.	11	12
Dressing Hide Shoulders.	10	12
Do. do. Bellies ..	9	10
Kip Shoulders	6	8
Do. Bellies	6	7

DRESSING HIDES.

	lbs.	lbs.	d.	d.
Common	20 to	24	14 to	16
Do.	25	28	14	16
Do.	30	34	14	16½
Do.	35	40	15	17
Saddlers	30	35	16	18
Do.	36	50	17	19
Bulls			11	13
Shaved	14	16	18	19
Do.	17	19	17	19
Do.	20	23	16	18½
Do.	24	28	16	18
Scotch do.	16	24	16	19
Coach, per Hide			30s. to	35s.

HORSE BUTTS. Shaved.

	d.	d.	d.	d.
English	10 to	11	14 to	15
Spanish	10	11	14	15

HORSE HIDES.

	lbs.	lbs.	d.	d.
English	13 to	18	11 to	14
Do. without butts	9	14	12	15
			s. d.	s. d
Spanish salted, without butts, per hide.	6	9	11 6	14 6
Do. do. do.	9	12	12 6	0 0
Do. do. do. inferior			7 0	9 0
Do. dry do.	6	8	8 6	11 6
Do. do. do.	9	11	11 0	14 0
Do. do. do. inferior			5 0	7 0

CALF SKINS.

Av. weight.		Unrounded.		Rounded.	
lbs.	lbs.	d.	d.	d.	d.
20 to	28	14 to	16	17 to	23
30	35	15	17	17	24
35	40	15	18	17	25
40	45	16	18	17	26
45	50	16	18	17	26
50	55	15	17	17	25
55	60	15	17	16	24
60	70	15	17	16	23
70	80	14	16	16	22
80	90	14	16	15	22
90	100	14	16	15	21
100	120	13	15	14	19

KIPS.

	lbs.	lbs.	d.	d.
Petersburgh	4	to 7	19 to	21
Do.	7	9	17	21
Do.	9	10	16	20
Do.	11	13	16	19
E.Ind.dry sltd.	5	7	19	24
Do. do.	7	9	18	21
Do. seconds			15	18
Do. thirds			12	14
Do. inferior			8	10

SUNDRIES.

	s.	s.
Hog Skins, best each	12 to	19
Do. seconds ,,	7	12
Seal Skins, split, per doz.	46	66
Do. for bindings ,,	34	66
Calf Skins, Sumach-tanned ,,	30	45
Do. white ,,	25	35
Horse Hides, white, each..	8	13
Sheep Skins—	d.	d.
Basils, unstrained, per lb.	8	14½
Do. strained ,,	8	14½
Do. facing, per doz.	5s.	16s.
Tan, Sheep, & Lambs ,,	10	16
White Sheep, per 120	50	90
Do. Lambs, ,,	40	80
Do. Sheep & Lambs, strained, per doz.	5	14
Sumach Roans, per doz.	16	30
Do. Skivers, ,,	5	12
Bark Skivers, ,,	7	12
Hide Splits, per lb.	9 to	11d.

MANURES.

PRICES CURRENT OF GUANO, &c.

PERUVIAN GUANO, (per ton, for 30 tons) nominal	£12 5 0	to £0 0 0
Do. Do. (under 30 tons)	13 0 0	0 0 0
BOLIVIAN GUANO none	0 0 0	0 0 0

ARTIFICIAL MANURES, &c.

	£ s. d.	£ s. d.
Nitrate Soda (per ton)	£17 0 0	to £18 0 0
Nitrate Potash or Saltpetre	29 0 0	30 0 0
Sulpht. Ammonia	16 0 0	17 0 0
Muriate ditto	27 0 0	28 0 0
Superphospht. of Lime	5 10 0	6 0 0
Soda Ash, or Alkali	9 0 0	10 0 0
Gypsum	2 0 0	2 10 0
Coprolite	3 5 0	3 10 0
Sulph. of Copper or Roman Vitriol, for Wheat steeping	45 0 0	to 47 0 0
Salt	1 0 0	1 10 0
Bones, Dust, per qr.	1 1 0	1 2 0
Do. ½-inch	1 2 0	1 3 0
Oil Vitriol, concentrated, per lb.	0 0 1	0 0 0
Do. Brown	0 0 0½	0 0 0

OIL-CAKES.

Linseed-cakes, per ton—		
Thin American, in brls. or bags	£10 15 0	£11 5 0
Thick do. round (none)		0 0 0
Marseilles	£9 10 0	to £10 0 0
English	10 10 0	0 0 0
Rape-cakes, pr ton	6 0 0	6 10 0

John Keen, 35, Leadenhall-street,
(Late Odams, Pickford, and Keen.)

Agricultural Chemical Works, Stowmarket, Suffolk.

Prentice's Cereal Manure for Corn Crops	per ton	£8 10 0
Prentice's Turnip Manure	,,	7 0 0
Prentice's Superphosphate of Lime	,,	6 10 0

HIDE AND SKIN MARKETS.

LONDON, Satuday, Oct. 23.

	s. d.	s. d.
MARKET HIDES:		
56 to 64lbs. per lb.	0 3¾	to 0 4
64 to 72lbs.	0 4	0 4¼
72 to 80lbs.	0 4¼	0 4½
80 to 88lbs.	0 4½	0 5
88 to 96lbs.	0 5	0 5½
96 to 104lbs.	0 5½	0 6
104 to 112lbs.	0 6	0 6¼

	s. d.	s. d.
HORSE HIDES, each	8 0	to 10 0
CALF SKINS, light	3 0	5 0
Do. full	6 6	7 0
Shearling	0 0	0 0
Half-bred Sheep	4 3	5 0
Downs	3 3	4 0
Polled Sheep	5 0	7 0
Lambs	0 0	0 0

WOOL MARKETS.

ENGLISH WOOL MARKET.

LONDON, Monday, Oct. 25.—Since our last report a few parcels of short wools have changed hands at very full prices, but in long wools next to nothing has been passing, on former terms. The supply on offer is very moderate; but dealers act cautiously, owing to the approaching public sales of colonial wools.

Per pack of 240lbs.

Fleeces—Southdown Hogs	£16 10	to £17 0
Do. Half bred Hogs	16 0	17 0
Do. Kent	17 0	17 10
Do. Southdown Ewes and Wethers	14 10	15 10
Do. Leicester do.	14 10	15 10
Sorts—Clothing, picklock	17 10	18 10
Do. Prime and picklock	17 0	17 10
Do. Choice	16 0	17 0
Do. Super	14 0	15 0
Do. Combing—Wether matching	17 10	18 10
Do. Picklock	16 0	17 0
Do. Common	14 0	15 0
Do. Hog matching	20 0	21 0
Do. Picklock matching	17 0	18 0
Do. Super do.	14 10	15 10

BRADFORD WOOL MARKET.—There has been more inquiry than for some weeks past, and some few sales have been effected where any inducement has been offered. Prices keep firm, and for bright-haired wools no ease is obtainable. Noils and brokes continue firm at the rates current a few weeks ago. Yarns: There has been more inquiry amongst the Delaine manufacturers of Lancashire than for some time, and several heavy orders are offering, but the rates are such that the present price of wool compels the spinner to decline them. Spinners continue busy, especially in the spool trade, where the demand is fully equal to the supply. The export houses are not doing much just now. Pieces: There is a fair business passing, and manufacturers keep their looms fully employed on order at more remunerative rates than have been current for some time. Prices grow stiffer week by week, as the manufacturers find warps and wefts worse to do.—*Bradford Observer.*

LEEDS (English and Foreign Wool Markets), Oct. 23.—There has been a slight improvement in the demand for combing wool, and prices are unaltered. There is no new feature with regard to colonial, which is light in stock. Prices are well sustained; but there is no disposition to speculate on the part of manufacturers.

LIVERPOOL WOOL MARKET, Oct. 23.

Scotch Wool.—There is a better inquiry for Laid Wool; still late sales have been in favour of the buyers. White is in fair demand. Cheviots and Crossed are still in limited demand.

	s. d.	s. d.
Laid Highland Wool per 24lbs.	10 6	to 12 0
White Highland do.	14 0	15 0
Laid Crossed do. unwashed	13 0	14 6
Do. do. washed	14 0	15 6
Laid Cheviot do. unwashed	15 6	16 6
Do. do. washed	18 0	19 0
White Cheviot do. washed	26 0	30 0

Foreign Wool.—There has been a fair demand for all classes of clothing Wool during the week, and considerable sales of medium Buenos Ayres have been sold at very satisfactory prices; and for all classes of Wool also with some length of staple, there is more inquiry.

FOREIGN AND COLONIAL WOOL MARKET.

Per lb.	s. d.	s. d.
German, Saxon, and Prussian. 1st and 2nd Elect	3 4	to 4 6
Prima	2 4	3 0
Secunda	2 0	2 4
Tertia	1 8	1 10
Colonial:—Sydney—Lambs	1 5½	2 1½
Scoured do.	1 4½	2 8
Unwashed	0 9½	1 6
Locks and Pieces	0 10	1 9
Slipe and Skin	1 4	1 9
Port Philip—Lambs	1 4	2 1
Scoured do.	1 2½	2 3½
Unwashed	0 6	1 0½
Locks and Pieces	1 1	1 7½
Slipe and Skin	0 8½	1 6½
S. Australian—Lambs	1 4	1 9
Scoured do.	1 3	2 2
Unwashed	0 9	0 11
Locks and Pieces	0 7	1 2
V. D. Land—Lambs	1 5½	1 11
Scoured do.	1 5	2 8
Unwashed	1 1½	1 3
Locks and Pieces	1 0	1 6
Cape of Good Hope—Fleeces	0 11	2 0
Lambs	0 11	1 10
Scoured	0 8	1 10
Unwashed	0 7½	1 0

METALS.

LONDON Saturday, Oct. 23.—Spelter moves off slowly, at £22 17s 6d. to £23 per ton on the spot. In Zinc very little is doing, at £30. Tin is firm, and rather dearer; Banca, 119s. to 119s. 6d., Straits 116s. to 117s. Tin plates are the turn higher, with a fair demand. In Lead very little is doing at £21 10s. for English pig, and £22 10s. for sheet. Copper sells slowly, yet prices are supported. Other metals rule about stationary.

Prices Current, duty paid, unless otherwise stated.

ENGLISH IRON.

Bar and Bolt *a* per ton	£7 0 0
In Wales *a*	6 0 0
In Liverpool *a*	8 0 0
In Staffordshire *a*	9 5 0
*Sheets, single *a*	£9 0 0—9 10 0
* Do. double *a*	10 10 0
*Hoop *a*	£8 15 0—9 0 0
*Nail rod, round *a*	£7 10 0—8 0 0
Do. square *a*	8 10 0
Rails, Wales, *c*	£6 2 6—6 5 0
Do. Staffordshire *c.*	£7 15—0 0 0
Railway Chairs, Clyde	4 0 0
Pig, No. 1, Clyde *c*	£2 16 0—3 0 0
3-5ths No. 1 & 2-5ths No. 3	3 10 0
No. 1, in Wales *b*	4 0 0
Scotch Pig, No. 1, in Lond.	3 16 0
Stirling's Non-laminating or Hardened Surface Rails	£9—9 2 0
Coal-blast, No. 1 Foun.	6 10 0
Charcoal bars	14 10 0
Stirling's Patent toughened Pigs, in Glasgow	3 10 6
Do. in Wales	£4—4 5 0

FOREIGN IRON *a*.

Swedish	£12 10 0—13 10 0
Russian CCND	14 10 0
Ind. Ch. Pigs in London	6 0 0

FOREIGN STEEL *a*.

Swedish keg, nom.	£18 10 0—19 0 0

ZINC.

In sheets *d*	£30 0 0—0 0 0

SPELTER *c*.

On the spot	£22 17 6—23 0 0
To arrive	23 10 0

ENGLISH COPPER.

Tile, 14 to 28lbs. *a*	98 0 0
Tough Cake *a*	98 0 0
Sheath and Bolts *a* per lb.	0 0 0
Sheet *a*	0 0 11
Bottoms *a*	0 0 11
Yellow Metal *a*	0 0 0
Wetterstedt's Patent Metal† per cwt.	2 0 0

ENGLISH LEAD *a*.

Pig, per ton	£21 0 0—21 10 0
Sheet	£22 5 0—22 10 0

FOREIGN LEAD *a*.

Spanish in bond, p. ton	£20 0-20 15

ENGLISH TIN *e*.

Block, per ton	£111 0 0—112 0 0
Bar	£0 0 0—112 0 0

FOREIGN TIN *c*.

Banca	£119 0 0—119 0 0
Straits (uncert.)	£116 0 0—117 0 6

TIN PLATES *b*.

IC Charcoal, per box	£1 12—1 13 0
IX do	£1 18 0—1 19 6
IC Coke	£1 5 6—1 6 0
IX do	1 11 0—1 13 0
Canada Plates per ton	14 10 0
QCKSILVER *f*. per lb	1s. 11d.—2s

Terms.—*a*, 2½ per cent. dis.; *b*, 3 ditto; *c*, nett; *d*, 1½ per cent. dis.; *e*. ditto; *f*, 1½ ditto. Delivered in Liverpool, 10s. per ton less.

* Cold blast, f.o.b. in Wales.

† Discount for cash in fourteen days, 5 per cent.

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THE FARMER'S MAGAZINE.

DECEMBER, 1858.

PLATE I.

PORTRAIT OF JAMES MORRELL, ESQ.,

OF HEADINGTON HILL, OXFORD.

PLATE II.

CARLISLE; A HEREFORD COW.

THE PROPERTY OF THE RIGHT HONOURABLE LORD BERWICK, OF CRONKHILL, SHREWSBURY.

JAMES MORRELL, ESQ., OF HEADINGTON HILL, OXFORD.

Few persons have ever more deservedly ranked among *popular men*, either as magistrate, sportsman, agriculturist, or labourer's friend, than the "Fine old English Gentleman" whose portrait we here give. Mr. Morrell, now in his forty-eighth year, was educated at Eton; the owner of very considerable estates, he is ever ready to co-operate with, and aid the British Farmer in all matters where "Progress" is the watchword and "Onwards" the motto, in any well considered and judicious improvement or pursuit—anxiously solicitous that the honest labourer's heart may never know distress, and who,

> "When the poor want aid,
> Denies them nothing but his name."

The pages of the *Sporting Magazine* for this month record the particulars of his never-to-be-forgotten decade as master of the O. B. H.; and Oxford attests the ever memorable year of his shrievalty in 1853; whilst within the walls of his magnificent and newly erected mansion, on which the motto of an old baronial residence might most fitly be inscribed—

> "Thro' this wide opening gate,
> None come too early, none return too late,"

such princely hospitality is dispensed, that we echo but the public voice in affirming there is but *one* Headington Hill to look from, *one* Oxford to look at, and but *one* James Morrell for hospitality and benevolence, as "of the olden time."

PLATE II.

CARLISLE; A HEREFORD COW.

THE PROPERTY OF THE RIGHT HONOURABLE LORD BERWICK, OF CRONKHILL, SHREWSBURY.

Carlisle, bred by Lord Berwick and calved in 1854, was got by Albert Edward (839), dam Silver, by Emperor (221).

Albert Edward, also bred by Lord Berwick, was the first prize aged bull at the Royal Agricultural Society's Meeting at Gloucester.

Carlisle has never been exhibited but three times, and on every occasion at the great National Meetings of the Royal Agricultural Society.

In 1855, at the city from which she takes her title, she won the first prize of £10 as the best yearling heifer.

In 1856, at Chelmsford, she took the first prize of £15, as the best heifer in calf.

In 1857, at Salisbury, she took the first prize of £20, as the best cow in milk.

There never was a better Hereford cow shown than Carlisle. It would be difficult to find any fault with her. She is extraordinarily level and handsome, of compact symmetrical form, deep in her frame, and a most superior "handler." She has a capital head, with horns fine and waxy—one drooping and the other up. She is full in the chest, good in the girth, has not very prominent but well covered hips, and a famous loin. In fact, for symmetry and quality, and as a perfect specimen of her breed, Carlisle stands deservedly high as a prize animal.

"The origin of the Herefords," says *Cecil* in his recently published HINTS ON AGRICULTURE, "is not accurately known, though it is related that they were imported from Flanders some two centuries ago. Whether there is any truth in this I will not presume to offer an opinion, or whether the report originated in the circumstance that cattle of a similar description are depicted in old Flemish paintings. This, at least, confirms that they had in Flanders cattle similar in appearance. From what cause it is difficult to explain, this breed has not hitherto received equal attention and patronage that the short-horns have enjoyed. In the county from whence the title is derived, and in the adjoining counties of Salop, Worcester, and Radnor, this breed flourishes most conspicuously upon its own real merits. It has for many years been held in the highest esteem; aud although the banners of fashion have not waved over it so extensively as the short-horns, some of the best judges give it precedence. The splendid animals which have of late years been exhibited at different agricultural meetings by Lord Berwick, of Cronkhill, near Shrewsbury; Mr. Walter Maybery, of Brecon; Mr. Carter, of Doddington, near Ludlow; Mr. Price, of Pembridge; Mr. Daniel Burnett, of Turnstone, near Hereford; Mr. W. Racster, of Thringhill, Hereford; Mr. Samuel Walker, of Urwick, near Ludlow; Mr. Tudge, of Ashford, and many other gentlemen and farmers, have maintained for this excellent breed of cattle the high repute that it justly merits. It may be here remarked, that when prizes have been given at agricultural exhibitions for the best animals in any of the classes of Short-horns, Herefords, and Devons, that the Herefords have had their share of awards; and, in some instances, when preferences have been given to the short-horns by the judges, public opinion has reversed the decisions.

"Irrespective of the Herefords which are exhibited at the meetings, it is impossible to enter the county, or the adjoining counties, where the breed is prevalent, without being forcibly impressed with the general excellence of the common stock. Of course, some indifferent animals may be seen, but they belong to small farmers and persons who do not possess the taste or judgment to make better selections. If it were possible to inculcate in the minds of such persons the difference in point of value, and the consequent profit between good and inferior animals, it would be the readiest and most certain step towards universal improvement in their stock, and in the cultivation of their farms; but, until a more liberal and generally diffused system of education be introduced among that class, those great objects will never be accomplished. It may be accepted almost as a rule that the more enlightened a man is, the more refined will he be in the selection of his stock and the cultivation of his farm."

ARTIFICIAL FOOD.

BY CUTHBERT W. JOHNSON, ESQ., F.R.S.

I have on another occasion endeavoured to show the approximate consumption of meat in our country at this time, and also at the commencement of the present century (*Farmers' Almanac*, for 1859). These kind of inquiries will be deemed useful by my readers in several ways; they not only serve to show the progress made in the consumption of meat, but they clearly prove the enormous advances made by the skill and energy of our agriculturists in the supply of that long and still rapidly enlarging demand.

If, indeed, it is a correct estimate that the average consumption of meat in Great Britain is equal to about 75lbs. per head, then it would appear that as the population of our island was 11,000,000 in 1801, and about 22,000,000 in 1859—that 855,000,000 lbs. of meat were consumed in 1801, and double that quantity, or 1,710,000,000 lbs., in 1859. Now as to this increased demand of 855,000,000 lbs. in 58 years, how was that satisfied? where did the supply come from, but from the broad lands of Britain? It is useless to think of foreign live stock. Here the English farmer is, fortunately for himself and for his country too, not subject to a ruinous competition. To what does all the foreign supply of meat amount? Take the sheep and lambs imported, for instance, in the years 1856 and 1857, from the two last official returns: why they amounted to 145,059 in 1856, and to 177,207 in 1857, being an average yearly import of 161,133 sheep and lambs. Even allowing these to average 100 lbs. each, here was a supply of 16,113,300 lbs. of mutton, which would, at 75 lbs. a-head, only be sufficient for the annual consumption of 214,844 persons. If you add to this the cattle, the pigs, the beef, the bacon, &c., imported, you hardly have a supply of animal food equal to the yearly demand of 1,000,000 persons; the remaining 21,000,000 Britons are to solely rely (and that demand has been right nobly responded to) on the steadily increasing efforts of the cultivators of our island.

If we contrast the smallness of the supply of foreign meat with that of the imports of foreign corn, how widely different is the result we obtain! If we allow a quarter of wheat to represent the average annual consumption of each individual, then in the year 1857 there was imported into this country in only foreign wheat, meal, and flour, bread for a year's support of 4,006,285 persons, more by 3,000,000 persons than the imported animal food could supply. With these facts in our possession, need we ask why meat maintains a remunerative price, whilst bread is selling below the cost of its production?

Such facts lead us also to another practical and useful portion of the inquiry—the means of promoting the production of meat; of still farther enlarging this, the most profitable and the most safe branch of the farmer's business—the only agricultural product, in fact, that is likely to long continue to be in increasing demand, without encountering a corresponding foreign competition.

There have been even within the last few weeks two or three valuable papers published, giving the results of valuable experiments in the production of food for stock and its consumption, well worthy of our careful consideration. The comparative value of swedes and cabbages (a crop which I think has never yet been cultivated to the extent to which in many districts it is capable) has been tried in some carefully-conducted experiments of Mr. J. M'Laren, of Rossie Priory (*Trans. High. Soc.*, 1858, p. 373). In his prize report, after describing his mode of cultivating the cabbages, and the weight per acre (cabbages 42 tons 14 cwt., swedes 26 tons 12 cwt.), he thus describes the result of his trials with two lots of Leicester sheep (10 in each lot): "On the 1st December, 1855, both lots were put into a field of well-sheltered old lea, having a division between them. All the food was cut, and given them in troughs three times a day. They also had a constant supply of hay in racks. At the end of the trial, on the 1st of March, 1856, the sheep were all re-weighed, sent to the Edinburgh market, and sold on the same day. As I had no opportunity of getting the dead weights, I requested the salesman, Mr. Swan, to give his opinion on their respective qualities. This was to the effect that no difference existed in their market value, but that the sheep fed on turnips would turn out the best quality of mutton with most profit to the butcher. Both lots were sold at the same price, viz., 52s. 6d. During the three months of trial, we found that each lot consumed about the same weight of food, viz., 8 tons 13 cwt. 47 lbs. of cabbage, being at the rate of $21\frac{1}{5}$ lbs. per day for each sheep; and 8 tons 10 cwt. 7 lbs. of swedes, being at the rate of $20\frac{9}{10}$ lbs. per day."

It will be seen, by referring to the subjoined table, that in this trial the swede has proved of higher value for feeding purposes than the cabbage, making 11 st. 4 lbs. of gain in weight, whilst the cabbage made 10 st. 9 lbs.; at the same time 3 cwt. 40 lbs. less food was consumed; and taking the mutton gained at 6d. per lb., the swedes consumed become worth 9s. 3¼d. per ton; while the gain on the cabbage, at the same rate, makes them worth 8s. 7d. per ton. But from the great additional weight of the one crop grown over the other, the balance at the prices, &c., mentioned, is in favour of the cabbage by £1 16s. 0d. per acre.

	Fed on Cabbage.	Fed on Swede.
	st. lb.	st. lb.
The weight of the 10 sheep on 1st. Dec., 1855, was	90 10	89 3
Weight on the 1st March, 1856	101 7	100 7
The gain was therefore	10 9	11 4
	£ s. d.	£ s. d.
The value of the gain at 6d.	3 14 6	3 9 0
Value of each crop per acre	18 6 6	12 6 7
Extra cost on each crop per acre	4 10 11	0 7 0
Free value of each crop per acre	13 15 7	11 19 7
Balance in favour of cabbage per acre	1 16 0	

On the management and feeding of breeding stock, much valuable practical matter is contained in the lately published prize essay of Mr. Edward Bowly, of Siddington (*Jour. Roy. Agri. Soc.*, vol. xix., p. 145). He observes, when speaking of the use of artificial food: "I never give any artificial food to animals after they have completed their growth, and not often after eighteen months old, up to which age I consider it is profitable to the breeders, whether of shorthorns or any other breed, to give a moderate quantity of oilcake, thereby increasing the size of the animal and the value of the manure. My cows have grass alone during the summer, late in the autumn a little hay at night and in the morning, and hay and roots when in milk in the winter, the dry cattle having pulped roots and straw-chaff during that season. This comparatively new mode of feeding cattle is one of the greatest improvements of the present day: formerly, when cattle were fed on roots and straw, they ate too many of the former and not sufficient of the latter; by thus mixing the two we induce them to eat the proper proportions of each, and they do much better with little more than half the old quantity of roots. I have several dry cows now in excellent condition, being fed on 45 lbs. of pulped swedes and a bushel and a half of straw-chaff each daily, with no other food whatever. My calves of last year, now eleven to thirteen months old, are in a very thriving condition with 28 lbs. of pulped swedes, one bushel of straw-chaff, with 2 lbs. of oilcake each daily. I have the chaff and roots mixed only a short time before they are given to the animals; if allowed to remain in a heap two or three days the mass will heat, and some persons maintain that it is best to give it to the cattle in this warm state. I have found no advantage in it myself, and I consider it therefore best avoided, as it may sometimes tend to acidity not favourable to the health of the stock. I have never tried the system of steaming and giving the food warm to the cattle; but a friend of mine, Mr. Anthony Bubb, of Witcombe Court, near Gloucester, has made several experiments in feeding cattle and pigs with steamed and unsteamed food, and has found no advantage from the former, except that when hay and straw-chaff are used alone it is rendered more palatable, particularly if the hay is of inferior quality. I consider straw objectionable food, unless accompanied by roots or a small quantity of oilcake; it often causes obstruction in the second stomach, which is one of the most dangerous maladies we have to contend with in cows."

The comparative qualities of cake, hay, &c., for sheep, have been reported in the last number of the *Transactions of the Highland Society*. Mr. B. Bird tells us, in his prize essay, that his experiments were made upon lots of five each; that the sheep were wethers, lambed in April, 1857; and as to breed, that they were got by Leicester tups out of half-bred ewes (a cross between the Leicester and the Cheviot).

The following table gives the weights of the five lots, when they were put into their pens on the 15th of December, 1857, and on the 22nd of February and the 15th of April, 1858 :—

	Dec. 15.		Feb. 22.		April 15.	
	st.	lbs.	st.	lbs.	st.	lbs.
1. Fed on turnips and linseed-cake	32	11	38	0	45	8
2. Turnips and rape-cake	33	0	37	1	39	7
3. Turnips and hay	33	1	37	4	43	13
4. Turnips and corn	36	3	40	11	48	2

The general conclusions to which Mr. Bird arrives is, that when feeding whole flocks, and when given in moderate quantities, such as the sheep will readily consume, the preference must be given first to linseed cake, secondly to hay, and thirdly to corn. But if given in larger quantities, provided it possesses a good mixture of clovers through it, is uninjured by wet in the making, and given to them chopped, that then the preference must be assigned to hay first, corn second, and linseed-cake third. As to rape-cape, he is of opinion that although feeding with it in this experiment was a decided failure, yet other breeds of sheep may be found to eat it—such as the black or grey-faced, or aged sheep or ewes.

Within the last few months various manufactured foods have been extensively advertised. It is hardly necessary to warn my readers to be cautious in the use of these mixtures. It is hardly possible that by any mixture of different kinds of food an advantage can be obtained by the consumer equal to the large advance made on the commercial value of the ingredients by the manufacturers.

This conclusion is entirely supported by the trials of Mr. J. B. Lawes (*Jour. Roy. Agri. Soc.*, vol. xix., p. 199); and, as he well remarks, these foods frequently cost from 40s. to 50s. per cwt. Taking the published average prices for the six weeks ending July 17, 1859, one cwt. of the following stock-foods would cost as under:—

One cwt. of	s.	d.
Barley	8	4
Oats	9	2
Beans	9	4
Peas	9	6
Lentils	10	0
Oilcake	10	0
Linseed	16	6
Hay	4	0

The manufactured foods thus cost, weight for weight, four or five times as much as the most nutritive of the ordinary stock-foods on our farms.

The following is the result, per cent., of an analysis by Mr. Segelcke, of one of these foods:—

Water	12·86
Nitrogenous substance	15·51*
Fatty matter	6·22
Starch, sugar, &c.	55·97
Woody fibre	5·50
Mineral matter	3 94

* Nitrogen 2·45 per cent.

Independently of the slight colouring with turmeric, and flavouring with cumin, anise, or other of the stimulating and carminative seeds used in cattle medicine, which these foods frequently exhibit, the constituents, as here stated, could be supplied by a mixture of barley-meal with some of the leguminous seeds enumerated, and oilcake or linseed. Such a mixture, according to the prices quoted, could be prepared for about one-fourth the price of the manufactured cattle-food.

Mr. Lawes instituted some comparative experiments with the food, the analysis of which has been given. Six pigs were divided into lots of three each. To lot No. 1 a mixture was given, composed of 9 parts barley-meal and 1 part bran. To lot No. 2 the same mixture of barley-meal and bran was given, with the addition of 2 parts of the manufactured food to every 10 parts of the barley and bran mixture. The food was in each case stirred up with hot water, and both lots were allowed as much of their respective foods as they chose to eat. The results were as follows:—

	LOT 1. 9 parts barley-meal, 1 part bran.	LOT 2. The same and 2 parts manufactured food.
No. of pigs	3	3
Duration of experiment	28 days.	28 days
Original weight	357 lbs.	355 lbs.
Final weight	496 ,,	494 ,,
Increase	139 ,,	139 ,,
Total food consumed	547 ,,	556 ,,
Food consumed to produce 100lbs. of increase	393 ,,	400 ,,

It is quite evident from the result of the above trials that our old friends, barley-meal and bran, produced as nearly as possible (and at less than one-fourth the cost) as much pork as the manufactured food.

To the institutors of valuable experimental inquiries like these, the gratitude of the stock-owner is justly due. It is utterly impossible that many farmers can carry on such trials, with the scientific and practical accuracy displayed by some of those whose labours I have referred to, and whose valuable reports I have abridged in this paper. They possess, too, the considerable advantage of being the researches of practical farmers: men anxiously labouring in search of truth; not seeking to support preconceived theories, but wisely suspicious of novel pretensions and improbable assertions; and as such I commend them to the careful study of my readers, as they sit by the side of their own warm fires and bright-eyed circles, on a cold December evening.

STOCK-FEEDING.

Having in the last article proved that a large amount of the carbon of food escapes during respiration, it will now be shewn how this carbon can be retained, and in a future article it will be shewn how this, as well as any other portion of the carbon of food, can be converted into flesh.

It may be allowable before proceeding, to advert to a few of the causes which have supported error, and obstructed investigation, of which the following are, perhaps, the chief:

That persons who have been schooled in, and taught to believe, particular doctrines, without even being allowed to investigate them; who have had degrees and honors conferred upon them, and who have long publicly espoused the doctrines thus "crammed" into them, are not, and cannot be expected to be sufficiently free to examine the basis of the theory upon which they have built their reputations, as by so doing they would undermine their own position.

One fallacy thus perpetuated is that of apportioning specific and separate duties to "starch," "sugar amylon," &c., &c., when they are only variations of each other, and are readily convertible from one to another; as for instance, starch becomes sugar during malting, and when food is digested the supposed differences cease to exist. The chief available substance in all cases, as before shewn, is carbon, differing in solubility in proportion to the oxygen with which it is associated—thus sugar is more soluble than starch; starch than lignine, &c.

Another obstacle is the practice of referring to the beautiful ordination by which the balance of nature is restored, by vegetables absorbing carbonic acid gas, and giving out oxygen; and animals absorbing oxygen, and giving out carbonic acid gas. This is generally held forth as a final answer, and intended to arrest all further inquiry. It is, however, worse than foolish to suppose nature's laws can be disturbed, as it pre-supposes a weakness in the Maker of those laws, and leads to the ridiculous idea of an Almighty weakness! showing the absurdity of allowing such doctrines to interfere with legitimate practical inquiry.

It is needful now to refer to the extensively-propagated, and generally-accepted, view of the purpose of respiration, which is evidently erroneous, viz.—

1. That by the combination of carbon in the blood with the oxygen of respiration, animal heat is supported.

2. That the removal of the excess of carbon from the blood is essential to render it fit for circulation.

Now, the union of carbon and oxygen takes place with only a trifling change of volume, and therefore cannot be productive of much heat, heat being only disengaged where combination is attended with a considerable diminution of volume. Animal heat is chiefly supplied by the union of the *hydrogen* of food with the oxygen of respiration, which during combination condenses and forms water.

Then, if the blood does contain an excess of carbon, it is only an *excess in relation to something else*. If it were too large a quantity *per se*, why not abstain from adding more by the food, which consists principally of carbon? It would, however, be more correct to say that there is a *deficiency of some other element or elements in relation to the quantity of carbon*, which is the actual case.

In order to make this more evident, suppose, as it occasionally happens, that a most unusual abundance of fish were caught, where there was not at hand a sufficiency of salt to cure them; would not any sensible person, instead of saying there were too many fish, at once say there was a deficiency of salt? This is exactly the case with the carbon of the blood; but *all salt is not muriate of soda*.

All parts of the animal system are supplied and renewed with substances derived from the blood during its circulation through them—carbon is the main element in the composition of animal substances—consequently it is extremely absurd to suppose there is any advantage attending the abstraction from the blood of the chief element of the flesh.

Food, as generally used, always contains a larger portion of carbon than of salts capable of retaining it when in the body of an animal; and this is the reason of, and is demonstrated by, the *relative* excess combining with oxygen, and escaping as carbonic acid gas.

The obvious remedy is to supply the deficiency of salts having an affinity for this carbonic acid gas, and we have, by the natural conformation of animals, every facility for making such application effectual.

The carbon contained in the blood circulates with it through the lungs, and there, coming in contact with oxygen, is transformed into carbonic acid gas; and it must be evident that if we introduce, through the medium of the food, into the blood, soluble substances having an affinity for carbonic acid gas, and this gas, and consequently the CARBON (which is one of its constituents) WILL BE ABSORBED OR FIXED, AND THUS PREVENTED ESCAPING.

It is admitted that *free* carbonic acid gas is injurious to animals, and must be expelled from the system; but when this gas is *fixed*, it may, on the contrary, be rendered highly beneficial, and the carbon it contains as conducive to the formation of flesh, as any other portion of the carbon of food. It is obvious that before any further process can be commenced with reference to the carbon becoming useful for flesh-making, it must be prevented flying off; on the same principle that Mrs. Glass says, "first catch your hare," before detailing the process of cookery.

The fixation of carbonic acid gas has been attempted by various means, but being deficient in chemical knowledge the parties making the experiments have never yet produced any decidedly beneficial results; for instance, charcoal, ashes, &c., have been used.

Charcoal when fresh will undoubtedly absorb a large quantity of carbonic acid gas; but charcoal itself being carbon, is afterwards converted into carbonic acid gas, and both it and the gas it had previously absorbed escape.

Ashes, when fresh and well burned, contain caustic alkalies which have an affinity for carbonic acid gas; but before they reach the lungs they are liable to corrode parts with which they come in contact; and not only so, but meeting with fat already formed in the animal, they unite with and form it into soap, and thus being rendered soluble it is evacuated and lost. If the ashes, on the contrary, have been long made and exposed to the air, they will have already become saturated with carbonic acid gas, and consequently cannot absorb or fix any more, and are therefore inert, if not injurious.

There are, however, two plans by which the fixation of carbonic acid gas can be certainly and beneficially accomplished.

1. By introducing into the system, along with the ordinary food, a soluble neutral salt, having so feeble an affinity existing between the acid and the base, that when in contact with carbonic acid gas the base will leave the acid, with which it was at first combined, to

unite with the carbonic acid gas. Hence it follows that when such a salt is absorbed during digestion, and conveyed by the blood to the lungs, it will seize the carbonic acid gas there generated. It is, however, imperative that the acid with which the base was at first combined be of a perfectly harmless character, or one that will decompose and resolve itself into its original elements (oxygen, hydrogen, and carbon), which is the case with vegetable acids. This arrangement causes the compound to remain perfectly inert until it comes in contact with the very object we wish to seize, and the presence of that object at once fits it for entering into combination with it.

2. This depends upon similar principles, and is in fact only a slight variation, viz., that in this case the acid must have a greater affinity for elements it will meet with in the lungs than for the base with which it was at first combined; consequently in the lungs it will separate from the alkali, which will then seize the carbonic acid gas. Of course it is here also requisite that all the compounds formed must be harmless, and this can not only be accomplished, but they shall be highly conducive to the health and vigour of the animal.

These are not "theories," for there is large and accumulating evidence of the results obtained by their application. Orthodox professors, having contradicted each other until it it has become a proverb that "doctors disagree," may attempt, when the evidence becomes irresistible, to show that they have been for years advocating the principles now being brought forward; but to which, as far as regards cattle-feeding, I lay absolute claim as the sole advocate.

G. H. Bolton,
Warrington. Agricultural Chemist.

IRELAND AND IRISH FARMING.

BY A PRACTICAL FARMER.

It is not my intention to occupy your pages by a history, or any especial report, of Irish agriculture; but, having had the pleasure to pay two short visits to that country, within the past two years, I am desirous to give a short outline of my journeys, and some remarks of a general character, chiefly relating to the improvement of its agricultural practice, its small farms or occupations.

No one can be more sensitive of the presumption I assume to myself in writing upon a subject of such vast importance on such shallow information as can be obtained in passing so rapidly through a country as an express train can take you. My first excuse is, that no one can pass through that interesting country, possessing any knowledge of agriculture, without remarking the poverty of its farming, and the slovenliness of its grazing, and at once coming to the conclusion that much remains to be done for Irish agriculture. My next excuse is, that I am anxious to add my mite to the general fund of information by which it may be improved, and that without "turning the world upside down," but taking Irish farming as it is, *i. e.*, that system of small farms, or cottage farming, which you see everywhere predominant. My chief object then is to attempt, in a very few papers, to show that great good may ensue to the Irish peasantry by the adoption of an improved system of cottage farming, besides giving a passing view of those parts of the country through which I passed so rapidly along.

My visits were both upon the eve of the Irish harvest, and in giving in detail "jottings from my note-book" on passing, something may be gathered of the state of the country at the time, and the various methods of farming, harvesting, grazing, and cropping pursued in different districts, with other useful memoranda. This I propose shall form my first papers; and my second will refer to the improvements I would suggest, and the means for carrying them into general practice.

First Journey, August 12, 1857.—Dublin to Waterford; started by train at 12.40; pass the beautiful Phœnix Park, the Hyde Park of Dublin. The Park is very fine, soil good, and well grazed. Enjoyed much a drive over it this morning previous to leaving. The beautiful undulations, tastefully arranged with shrubberies and forest trees, the Vice-Regal Lodge, the soldiery, the equestrian and splendid equipages, gave the whole park a most enlivening effect; and the number of Irish cars, to a stranger like myself, gave additional interest to the whole. I was loath to quit a scene so pleasing and exciting; but to my journey. On our left was the Railway Company's extensive works; soon into the country. The first thing I noticed in farm practice was the mode of securing the hay. It was got together in rather large hay-cocks, and was then fastened down with hay-bands to the soil by means of stakes. Soon come to some good grass pastures, and fair crops of corn. Some rich land now; hay still in cocks, none carried; wheat crops good, set out in stoukes of threes, and securely capped. Now pass through a dead level for some distance; pass some capital swedes; grass land foul, burrs, thistles, sow-thistles, ragwort, &c., &c.; oat crop green, very backward; potatoes all right; soil apparently a heavy clayey loam; oats green; wheat ripe; abundance of tall daisy weed and docks in the oat crops; wheat crops thin here, and very little cut; land cold and wet; barley quite green; oats ditto; notice some shorthorned cattle grazing near and along our route; arrive at Lucan Station.

The soil here is poor, the subsoil shale or slate; hay not carted anywhere. We pass on; now a fine country for grazing; land roughly grazed; the herbage is not very rich, but with good grazing would surprisingly improve. Nothing benefits fair grass land like good judicious grazing—never bare, never rough, and always to be kept clean. Rough grazing destroys the finer herbage and most nutritious grasses. Oat crops good; the

Swedish crops very good; clover hay still in large cobs; barley crops fair; pass a decent, not to say respectable, farm-house; farm-stead bad; told it was the Earl of Lucan's property, and his residence to the right; some wheat stacked; potatoes clean and good; now the stoukes of wheat are in eights and tens, and all capped. Arrive at Hazlehatch and Celbridge Station; very dark stone subsoil, almost like black slate; wheat crops thin and not ripe; some Tartarian oats; the land does not appear to be drained at all; a good house to the right; potatoes here show symptoms of disease; soil thin and stony, and country undulating. We keep passing on; oats and barley quite green, all fair; grass all preserved and fruitful, but no stock; wheat ripe and good; plenty of good potatoes; wheat looks safe in stoukes; clover hay in cocks of about a load each; green crops all good. We now pass into a flat, marshy, or fenny district, abounding with ditches, the soil rich; hay everywhere, none carted, much to make here and there; we have high hills all the way to our left, but distant; on the right all flat as far as can be seen. The rail runs in a slight cutting along here; rough grazing, but good grass; nearly all grass lands for miles, and wofully pestered with weeds—abominable carelessness! ragwort! ragwort!! ragwort!!! then scabious, daisy-weed, docks, sow-thistles, and all other weeds that can find room to grow. The soil a fine clayey loam, capable of anything under good culture; now it is hay, hay, hay, hay;* grazing the exception, but still much of it is grazed; the stock a mixture of Irish and Shorthorns. What would not good grazing do for this district? Many English graziers would rejoice to occupy such useful land—it would soon cut a better figure; now it is wretchedly grazed. The shorthorns are not good, nor is the cattle generally of good character.

We have now got through to the hills, "clay and pebbles;" pass a river (the Liffey, I suppose); now and then through a limestone cutting; now through into the flat country again, some of it under corn crops; we arrive at Sallins Station. We again deprecate the shameful state of the grass lands lately passed. Surely they could be fed completely off once in the year; if so, it would do much to their restoration. Nothing teases me so much, in passing along, as this wasteful mode of grazing. After passing the station you are at once in a corn-growing district, producing good crops, and chiefly of white wheat; oats very strong; farm-houses very thin as seen along the route; pass the river again; now hay, hay, again—what is it all for? rather a queer country in which to winter cattle; but I conclude that is its destination. Oats tall and good; grass is all in tufts and patches. Oh for Fowler's under-draining plough! Country a little undulating now; heavy hay crops; potato tops failing; land still badly grazed. Now much in railway cuttings; grass land to the left; on the right very rough, subsoil "clay with pebbles;" wheat put together in very small cobs in the fields, the men are reaping, and the women tying and shocking; potatoes here very good. Now a poor district—sorry, sorry doings, hay not yet made, cold and backward; busy mowing; oats green; better grazing; Irish and Shorthorns, stores and others; no sheep. We pass on; hay, hay, hay, and very good crops; land badly grazed. Newbridge Station; for once a good farm-house to our right; flock of good sheep, and other stock; capital oat crops; heavy hay crops. Now getting to a higher country; valley rich, but not managed properly; good swedes, and fair grazing; "pebbles and loam." Through cuttings continually, low, but sufficient to obstruct the view; now into an extensive grazing flat, and far better done, large fields; Wicklow mountains to the left; hay in large hay-cocks, fastened with good hay-bands to the ground. Now at Kildare Junction; a fine old ruin on our left, with its lofty round tower. It is an old walled town, in a fine country for agricultural purposes; a darker and finer loam; much hay, potatoes good, crops thin; don't like the farm-houses; cottages, now bad; meet with the first Irish peat-bog, which extends for miles; Killarney rail to right; digging immense quantities of peat; town off to the right; now across the bog, extending far to the right and left of rail. It has a singular and forbidding appearance: not fen nor high land; some portions of the bog are many feet in thickness, and several feet above the level—in fact, high ground; we pass along over it; crops near, and wood to the right; more bog to the left; all wet and queer. The cottages are meagre and wretched hovels; appear to be open commons and sorry doings; bog, bog—here many feet thick; rows of eight or ten wretched Irish cabins, and some bad Irish cows; hay-making; the bog is not black, but a reddish brown, and now on our left about two feet thick, and containing thousands of acres. A manufactory for making peat-charcoal, &c., &c., on our left. We are at length over the bog into a clayey loam district, where the crops are fair, but the land badly managed; woful country to reside in; fair crops; red wheat; farm-houses very thin, and all we see are whitewashed and slated; cottages worse and worse; specimens of wheat-reaping; sheaves very small, nine inches girth. Barley-cutting; noticed want of hands; satisfied that all the Irish may keep at home in harvest-time. Now arrive at Athy Station. A large old town; very mean-looking country, denoting poverty throughout the district; castles apparently in town; the country and its agriculture are both alike unfavourable; as we proceed, it does not improve in its general features; counted six men, six women, and two lads, all at harvest work, in a space not more than twelve yards square, reaping, tieing and shocking; pass some shorthorn cattle grazing near; good barley crop; oats good; more enclosures, but sadly done; sheaves very small; saw a flock of large heavy Irish sheep, similar in character to those found in Romney Marsh, but better; fancy a Lincolnshire fen-farmer farming here! Country rather better; to the left, bad again. O for more capital to be freely expended! What good might be effected all around! Better again, and fairly attended to, but badly grazed.

The soil is now a convertible loam, only requiring better management. We soon arrive at a still better country, and pass some better farming. The crops, for a wonder, tolerably clean; but what awful cottages! Huts! cabins! what are they? Wheat good, swedes good; now a good farm-house and farmstead; land well grazed with very useful sheep—quite a Goshen in the country; soil good loam, with pebbles; seeds look well; indeed all looks well for a mile or two, and denotes good farming; arrive at Mageney Station. I inquire who farms near here; *Mr. Anderson, the Scotchman*, was the reply. What good a single farmer does in his immediate neighbourhood by such an example! The whole district is benefited by his knowledge and enterprising spirit. I never saw a better proof of it than here. All may profit by his experience, and better farming is the result. Obtain a fine view to the right; here are shorthorn cows, and better grazing (see the clouds on the Wicklow mountains to left); on, on; pass a herd of shorthorn cows and heifers; no steers anywhere; good and useful grass land; potatoes failing; wood to left, and gentleman's residence somewhere; on the Park the land good. Where is the population to manage this district? certainly not to be seen on passing. Now reach Carlow. It bears the marks of a more modern town, with those fine churches and buildings, seen well from the rail; many houses small; rows of low, wretched cottages; land fine; the hill on opposite side of the town has a fine effect; potatoes failing everywhere. Soon into a flat district; potatoes worse and worse; land wet; the flat nearly all grazed with cattle of the country, and not useful shorthorns; sheep to right and left; no good cart horses anywhere; potatoes still failing.

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* Before leaving England the hay was all secured, and most of the corn cut, and much stacked.

Milford Station: The country lately passed and around here is very convertible, and would form a capital agricultural district if well cultivated and drained, much hay, corn, and many heifers grazed; no steers; flock of ewes; clover in great cocks, tied down as usual; gentleman's residence to the left, who is underdraining the farm, and all is well done; potatoes giving way; wheat and swedes good, some secured in fields, nearly all alike in small cobs. Bagnalstown Station; now getting amongst rocks, which crop out above the surface. Wheat crops mostly temporarily secured in the fields, by being built into small cobs, rounded and pointed at top, and tied at top and around with straw in a peculiar way, about a small cart-load in a cob. Again in the valley, by a fine river; potatoes worse and worse, many grown; district near the line fairly farmed; small enclosures, but very useful land, only requiring close attention; more grass, some much better done; gentleman's park to left, which accounts for the improvement, and is a good omen for the future. Country gentlemen cannot adopt a wiser course than to set such bright examples, taking care to avoid expensive processes, which only tend to discourage poor and ignorant farmers. The whole district is badly drained, it is laid into small lands with wide furrows; there is much hay to make; counted nineteen men and women within the space of fifteen yards reaping wheat; the country here is flat and swampy: potatoes of course bad; shorthorn cows prevail, where cows are kept, some seen here; extremely flat; to the left are high hills, not very distant. The fences are badly kept all along; crops nowhere heavy. The breed of pigs is similar wherever seen, and are of the improved sort, much like the largest of the kind denominated the small breed in England; no old coarse Irish pigs to be seen; the breed is commendable anywhere. This is evidently a fine farming country, only requiring enterprising industry and capital. The Irish sheep seen are very similar to the Kents in form, but larger; however acceptable the district, you see nothing like England, no nice homes, no real comforts, apparent careless indifference to these things throughout; now strong loam, with pebbles all the way. The grass lands though good are not at all comparable with the best Lincolnshire pastures, and the grazing is less comparable; counted again 20 men and women in a still narrower compass reaping. Why do they keep in each other's way like this? Here we find good white-thorn hedges, or would be so if attended to, but all is negligently done; some useful implements seen; soil now poorer, but better managed. Park to the right; country improves fast again, wheat cobs, small and long sheaves with ears downward, capped and covering the cob. Kilkenny Station; Town beautifully situate; hay cutting; more pebbles, less clay. The Marquis of Ormond's castle is highly picturesque, and commands the whole town; the new Catholic cathedral is a fine object from the station, which itself overlooks the town. There are two catholic colleges here; the population about 22,000. It is in a beautiful rich valley, well wooded. The fine castle is embowered in fine forest trees all over the hill, so that you only see the upper portion of it, and all is in good keeping; a prettier object is seldom seen. We soon leave; the same black stone, often blue slate along the route; potatoes dead or all going; fine country, capable of bearing any amount of produce if highly farmed; crops now only so-so; again better farming; soon get to stones; much hay; fine turnip crops for such ground; on the hills the lands in six-furrow stetches; Tartarian oats green. Bennett's Bridge Station: country abruptly undulating; castle off to the left, and a monument in the distance, both old; better farming, good clovers, &c.; same soil, but more stone and less pebbles; harvest much alike, oats rather backwarder; potatoes backward; a good farm-house, for Ireland; harvest, five to cut, two women to bind, two to set up. Thomastown Station: Some large mills on the stream; good sheep, and better grazing. This is a nice locality, a good stream of water turning several fine mills; moory-looking hills in the distance; railway very high here above the valley; soon come to poor land, and much stone cropping out and gorse; pass fine old ruin of a church; soon amongst mountain lime-stone; fine country seen off to the right; potatoes are here good and green; many goats, apparently wild, near here; country to the right fairly farmed, but the grass is, as usual, roughly grazed; very few sheep seen; much hay still to make; small sort of cows—mixed breed, apparently of Irish and shorthorns; fine view of the country from the rail for many miles, being an extensive valley, bounded by distant hills to the right; same sort of sheep, Irish I suppose; herd of very useful cows on the left, with good house and farmstead. Now at Ballyhall Station; district much better; mangolds grown; gates of the farm here on railway numbered; wide valley to the right, extending far, and much of it grazed (a placard of "Repeal," is upon the stable end in red chalk, with "O'Connell"); a pleasant farm-house again, but as usual the yards join the house; noticed the manner of making hay; it is shaken about till dry, then seven or eight hands are engaged putting it into little cocks of two cart-loads each, by hand generally, either in yard or field; good herd of cows: this is evidently a dairy country; the whole looks to be well conducted. Cottages or cabins very indifferent; potatoes giving way. Now in a bad country; stone cropping out everywhere to the left—limestone; very poor locality; all stone again: this I jot down at intervals. Stone wall fences; here an old tower to left; still poor; district wild; grass all rough. Mullinavat Station: all wild, yet good grass in the valley below. Passed a fairly cultivated valley to Kilmacrow Station; country better; crops good; potatoes going in part; again amongst stone walls, and very rough pasturage; many dairy farms to be seen along the line of railway; potatoes bad; small fields in the valley; soon in sight of the beautiful river Barrow, and are immediately at Waterford. Here I spent a few days, and had ample opportunities of examining the district. Waterford is a fine city, and the river Suir flowing through it, gives a marked character of great beauty to the view; the country too is very fine, the soil decidedly good. I made excursions into the country, particularly the Tramore side of the city. Tramore is the Margate of Waterford, or Kingstown of Dublin. There is a splendid sea-view from the walks near the town. The country is fairly farmed, many gentlemen having residences near. Inspected two farms held by tenants; everything business-like, but after the most economical fashion; houses small, comfortable, and made the most of; no superfluous furniture, nothing but what was absolutely necessary, one immense iron pan sufficing for cooking, baking, and boiling: I was astonished by the tact displayed in economising space; the dairy well managed, and rather large in one case: why was I made to wade through a large and dirty fold-yard to reach the front door? and this is not uncommon even in respectable farmsteads. The proprietors here have succeeded in accumulating land so as to form fair-sized farms, of from 100 to 250 acres, which is considered a large occupation. I am surprised to find these farmers so very homely, their common designation not more elevated than Mike or Charley—no Sir nor Mister, nor Mistress—just above the labourer; and so contented! The labourers are sadly off—tenpence per day their regular wages, and not always employed, their habits and mode of living in accordance with it, their appearance denoting great poverty, and their comforts uncared for. Can it be wondered at that they lead low and grovelling lives, fond of whiskey and sensual indulgence, without the remotest idea that their position is a degraded one, and therefore have no wish to elevate themselves, living on the coarsest fare, dwelling in the worst of huts, clothed in the worst of rags, the younger part of the family scarcely clothed at all: give him an extra shilling per week, it goes for whiskey, not to provide a family comfort or a child's frock: it is this class that philanthropists should seek to elevate and improve.

LAW OF STEAM THRASHING MACHINES.

When George Stephenson gave that famous reply, stating that he thought he could travel at the rate of twenty miles an hour, although he knew very well he could go sixty, he only made due allowance for the proverbial caution of his countrymen. We are justly renowned for a prudent hesitation, a coy affection, or a Fabian policy that never suffers us to hurry ourselves. Be the last discovery of the enthusiast ever so promising or actually good, his most reasonable expectation is that plenty of time will be taken in testing it. An Englishman is rarely run away with. He may, perhaps, get accustomed to a great pace, but he only warms to it gradually. The Legislature itself takes especial care to put all necessary and discreet impediment in the path of the sanguine innovator. You must leave us our old turnpike, if you please, straight and clear and comfortable, all the same. You must not set the Thames on fire without due notice, nor practise the art of alchemy without all proper law and licence. There was a fine old statute to ensure the burning or boiling of witches, and another to keep poor people from dressing too fine.

Every now and then we stumble over one of these precious enactments. A clever counsel, seeing no other hope for it, will rake one up for the benefit of his much-injured client, "the prisoner at the bar." Or, more probably still, a bench of country magistrates will alarm the whole county by putting such an act into force. We are half inclined to believe there are good honest Justice Shallows still amongst us, who would have Mother Bunch ducked forthwith if she were only duly arraigned before them, or order Professor Brownio straightway into the stocks, on his being proved to have put sixpences into his mouth and to have brought them out of his eyes! The wisdom of one age is clearly intended for all, and we walk in continual fear of offending against the known or unknown laws of our country.

Is the intelligent agriculturist, who rather prides himself on going with the spirit of the times, fully aware of his own danger? Does he know the offences he is committing over and over again with that portable steam-engine he talks so much of?—that great work of Hornsby, Tuxford, or Shuttleworth? Must he be told that, as often as not, its use is regarded by the law simply as a nuisance, and that he is liable to pains and penalties accordingly? As very possibly he may yet be in ignorance of all this, we will quote the law as it stands against him. Let him turn to the 5th and 6th of William IV., cap. 50, and bearing date the 31st of August, 1835. This is an Act "To consolidate and amend the Laws relating to Highways in that part of Great Britain called England;" passed, be it remembered, at a time when roads were roads, and turnpike travelling just in its zenith. Amongst, then, a variety of other items, "to make them handsome or to keep them nice," we come to see, it be further enacted:

> "That from and after the commencement of this Act it shall not be lawful for any person to sink any pit or shaft, or to erect or cause to be erected any steam engine, gin, or other like machine, or any machinery attached thereto, within the distance of twenty-five yards, nor any windmill within fifty yards from any part of any carriageway or cartway, unless such pit or shaft, or steam engine, gin, or other like engine or machinery, shall be within some house or other building, or behind some wall or fence sufficient to conceal or screen the same from the said carriageway or cartway, so that the same may not be dangerous to passengers, horses, or cattle; nor shall it be lawful for any person to make or cause to be made any fire for calcining or burning of ironstone, limestone, bricks, or clay, or the making of cokes, within the distance of fifteen yards from any part of the said carriageway or cartway, unless the same shall be within some house or other building or behind some wall or fence, sufficient to screen the same from the same carriageway or cartway as aforesaid; and in case any person shall offend in any of the cases aforesaid, every such person so offending shall forfeit and pay any sum not exceeding five pounds for each and every day such pit, shaft, windmill, steam engine, gin, machine, or fire shall be permitted to continue contrary to the provisions of this Act; which said penalties shall be levied, recovered, and applied in such and the same manner as any penalty or forfeiture for any other offence on any highway may be levied, recovered, and applied: provided that nothing herein contained shall be construed to restrain any person or persons from using, repairing, rebuilding, or enlarging any windmill, steam engine, gin, or other like machine, or any kiln or other erection used for the purpose of calcining or burning of ironstone, limestone, bricks, or clay, or the making of cokes, which may have been erected and may be in existence at the passing of this Act."

It can be of no consequence, nor argument whatever that this was passed before any steam thrashing machine was known of. It is quite sufficient that such is the law; and so Mr. Robert Lyne, of Barton Farm, is brought before the worshipful bench at Marlborough, and convicted of having had a thrashing machine in use within twenty-five yards of the public highway. The magistrates, moreover, regard it as a very serious affair, "a sort of thing" no doubt that "is terribly on the increase throughout the country." And they give strict orders to the police to be especially vigilant in bringing all such disturbers of the public peace before them.

It is by no means so certain, after all, that the magistrates have any power to convict, considering a portable engine can hardly be considered one the farmer has "erected or caused to be erected." The very wording of the clause, in fact, shows how antiquated all this is. But admitting it can be so construed, what an utter absurdity its enforcement in an age like this has become! The hum of the engine tends to the public danger—will frighten horses, and country justices, and old women, and so forth. As to the horses, there is hardly one in the county but goes under a railway bridge every day of his life. "My Lord's" thorough-bred bays face the train itself at a hand-gallop when she is "just due"; while the curate's grey pony stands uncared for and unscathed, his wife waiting on the platform to help her William down with all the shopping he is to bring home. As for a cart-horse being now alarmed at the sound of steam, we should almost as soon expect to see a soldier afraid of fire, or a duck of water. Even, beyond this, as Mr. Williams of Baydon puts it, in a good sensible letter on the subject, what are we to say to these engines being suffered to be about the roads, although not to work near them? Or what is to become of the nervous horses, county magistrates, and old women, when Mr. Boydell's coachman calls out to them to keep on their right side?

But still this is the law; and unless public attention be at once directed to it, the local justices may go on committing themselves and the farmers to eternity. There can be no steam-ploughing after all. You must not bring it within five-and-twenty yards of the old high-road. There must be no more field-stacking nor thrashing, for you may be within five-and-twenty yards of the road. In a word, the most convenient use of steam to the farmer must be denied him, in compliment to an old obsolete Act that could never have contemplated the absurdity and injustice now perpetrated in its name.

And then we shall have the agreeable inquisition of the policeman added to that of the keeper. Of course with his latest instructions he will be always peeping over the hedge to see how far off we are, and making mental calculations as to whether the unhappy corn-grower is really within range. As he will have, however, to swear to this, we will give him and the bench the benefit of an Old Bailey anecdote. "You declare," repeated the counsel to a witness, "you distinctly heard the prisoner say this. Now, how far from him were you at the time?" To which the man at once replied, "Seven yards two feet four inches and a-half." "How— what do you mean by that?" asked the other in turn, astounded at the preciseness of the answer. "Why, just this: I thought some precious fool or other might be asking the question; so I took out my foot rule and measured it."

Let that efficient body of men, the Wiltshire police, bear this in mind, and stand prepared.

TO THE EDITOR OF THE DEVIZES GAZETTE.

SIR,—I noticed in your paper of the 4th instant the case of Mr. Robt. Lyne, of Barton Farm, being convicted before the bench of magistrates at Marlborough, for "having ERECTED a steam-thrashing machine within twenty-five yards of a public highway, in the parish of Preshute, contrary to the provisions of the Act 5th and 6th William IV., cap. 50."

Now as this is the second conviction that has taken place in North Wilts—Mr. Sainsbury, I believe, having been previously convicted at Devizes; and I find that similar convictions have taken place in other counties Norfolk, for instance—

I beg a space in your *Gazette* this week to show what appears to me (with all due respect to the magistrates) the hardship of the above cases, if the convictions were legal—the anomaly of the law, if applicable to these cases—and, moreover, to doubt the jurisdiction of the magistrates to apply the above act against *a portable steam engine.*

I will first raise the question of, whether the above cases were subject to a fine under the Act 5th and 6th William IV.? It appears that Mr. Lyne was convicted for "having *erected* a steam thrashing machine;" now did Mr. Lyne *erect* that machine, or was it the manufacturer that was the guilty party? There is no doubt Mr. Lyne used it; but was he liable to a penalty under the above act for *drawing a portable engine and machine* to a rick or barn within twenty five yards of a public highway, and using it for thrashing?

I think it possible that the justices who have acted on the cases referred to are not aware of the fact that at the time the Act of the 5th and 6th William IV. was passed, nor during his Majesty's lifetime, was there a single *portable engine* in existence. The first that made its appearance was at the Liverpool Show, about seventeen years ago; and it is self-evident that the act *then* only applied to *fixed engines*, ERECTED in buildings, with chimneys *built* for the purpose; and it was similar to the act for preventing windmills from being *built* within a certain distance from the highway; and the law could not *then* have contemplated the construction of *portable engines*, and therefore I think the question might fairly be raised, if the magistrates have any jurisdiction to convict, *under that act*, for the use of them?

But, in the second place, assuming that they were correct in their decision, I beg to offer a few words on the anomaly of the law with respect to portable-engines. I have three steam-engines of my own, and I have made them all *locomotive.* One of my engines has travelled not less than *one hundred and sixty miles on her Majesty's highway;* the second has moved over 100 miles of the same, and the third has rejoiced in moving about my own parish! Now the law, which if it can be *strained* to make it apply to thrashing machines, can have nothing to do with my locomotive engines, seeing I do not stop to ERECT a machine, but have the *liberty*—like the rest of her Majesty's subjects—to make use of her highways for transit: and I am by no means the first who has set the example; *the authorities at Woolwich dock-yard having done the same thing with Boydell's Traction Engine!!!*

Now, if the law really does apply to portable steam-engines driving thrashing machines within 25 yards of the public highway, it means this:—*That of* ¾ths *of the barns in England* the owners will be liable to the penalty of £5 per day if they dare to use any of the thousands of steam-engines that have been purchased, at a vast expense, for the purpose. Again, the farmers in making their ricks at harvest will be liable to the same penalty, unless they place those ricks 26 *yards* from the highway which are now placed *close to the road* for the facility of transit, but which must hereafter be put in the field, and the land cultivated around: thus making the owner to go over the cultivated land to get at his ricks, which of itself is quite sufficient to condemn the whole affair in the eyes of every sensible man.

But let me ask what is the motive for bringing these cases before the magistrates on the supposed idea that it is an infringement of the law?

I have been told that some gentlemen consider it is dangerous to horses passing by; but if so, what would they think of meeting any locomotive engines *on the road*, where, I maintain, they have a right; and where we have passed hundreds of horses, and never met with but one restive one; the greater part of them taking no notice of the engine at all?

We are just arrived, too, at the period when a large portion of the soil of Great Britain is about to be cultivated by the steam-engine; and I ask, where is the law, and where are the magistrates who will put such an one in force (when the farmer is made to compete with the *free imports* of other countries) as to prevent him from the advantage of steam power? And yet if it can be applied in the one case, reason says it ought to be in the other; and if so it would put a veto on farm-work altogether, as in cultivating the fields the engine must go along the headlands.

I see that orders were given at Marlborough to the police to bring all cases of the like sort before the bench. But I would respectfully suggest to the magistrates to ascertain if they have any jurisdiction in the case; and moreover to consider the effect (if they have the power) of putting such a law in practice; as I am satisfied of this, that every practical man in the agricultural, the manufacturing, and the commercial interest will join in an application to Parliament for its repeal.

In these days of steam, when the agricultural interest is just coming from the rear in which it has always been kept for want of that power in a portable shape, I cannot but think it most injudicious to attempt to throw such an obstacle in the way of agricultural improvement, as this act would be, if legally applicable to portable steam engines, and strictly carried out; more especially as the only reason given appears to be, that horses will be afraid to pass it; at the same time they have to pass the railway trains, and often have to wait at the gates whilst the engines are passing by. There is no doubt they will have to pass many an engine on the road, and the sooner they are broken into it the better.

I trust, therefore, that you, and the press generally through your journal, will take the matter up and raise the question, if *portable steam engines* are subject to the said penalty under the 4th and 5th of William IV. cap. 50, and if so, let us unite our exertions to get the same repealed.

I remain, sir, yours faithfully,

Baydon, 15th Nov., 1858. J. A. WILLIAMS.

SOCIAL SCIENCE—AGRICULTURE.

SIR,—A great deal is just at present, with much justice, being said about the progress in scientific and general knowledge already made, and still making, by the classes whose pursuits are not agricultural. Will you permit me space for some notice of the great advance in agricultural knowledge and practice which is now so evident in every class at all connected with agriculture?

Not many years since, as the rule, a landed proprietor was simply the recipient of rent from his possessions, himself possessed of very little knowledge of the details by which this rent was created. The landlord of a host of tenants, the cultivation of the land was to him a certain thing of the plough, the barn, and the fold, in the hands of a certain man paying rent for the land he tilled, adding a great amount of outward if not inward respect for his landlord, with a vote at his disposal at elections. The real value of the land let to the tenantry, the nature of the buildings required, the cost of their erection and repair, these were matters about which the landowner might have some sort of idea, but he for the most part was indebted in all such detail of estate management to the agent or steward he salaried to supervise his property. A comparatively small number of large proprietors were also large practical farmers; it was considered an amiable and a most respectable sort of eccentricity. Woburn and Holkham had their periodical muck and flock fights, which attracted a great deal of notice, and did an immense deal of good; many gentlemen farmed—home farms—were generally supposed to do so, simply for amusement, at a cost the process seldom repaid.

How great is the change in all this! It has come to pass with a rapidity almost inconceivable; it has done a work the value of which is beyond all estimate. From the Prince Consort to the Governor of the Scilly Islands, from the woolsack to the youngest Bishop, from the Speaker to the last peer's son, borough-born into the "House"—through these, through every grade of Upper life, farming, in its general theory, is a thing more familiar than the catechism, far more generally practised in its most arbitrary requirements than the decalogue. Noblemen, even under the despotism of dining *a la Russe*, surrender the whole economy of the table to the cook and the butler, or *maitre d'hotel*, while they usurp the office of their "agent," well "up" in every branch of *his* duty—they reduce him, not merely to the rank of a subaltern, but expect him to sit humbly to learn at their feet, even in the matter of manure.

Some little time since I shivered several hours on a cold day in company with an earl (justly known far and wide for his most useful and consistent life); he was in council with his bailiff and a skilled shepherd, the business on hand being the singularly delicate decision to be arrived at in the division of a flock of high-bred Southdowns into three or four separate harems for as many fleecy heroes, whose lineage and fame in their own way had given them a money value for the season more than equal to the pay of many a curate for the year. I have never forgotten the skill of eye and touch shown by my noble friend as each mother *in futuro* was singly paraded, to be discussed and classed according to her points of bone, fleece, and mutton. The Earl spoke confidently, but ever and anon appealed to the crook-armed shepherd, who, pondering over the flock lore as it flowed from so exalted a source, yet hesitated not to assent to or dissent from the positions maintained, according to his own judgment. There was no wandering from the subject in hand, no scamping of the matter in impatient haste. Had certain friends of Henry VIII. taken half the pains about his Dutch spouse, who shall say what, even at this hour, might have been the result?

I have seen Ireland's first duke stand over a tank on a model farm, exquisite in its extreme filth, while one of England's best classic scholars eloquently, as a labour of love, gave to us the primary compounds of the horrid composition; dwelling, as we inhaled it, on its true chemical and gaseous elements, and, without moving a step, branching off into an ecstatic exordium on the wickedness, the positive guilt, of any waste of such Providence-by-beast offered wealth. I have met with men irritable to the borders of insanity at the smell of an oil-lamp which has put itself out; who are so fastidious that one fly in the soup would condemn the whole tureen; the smell of the groom in cotton gloves, waiting at a poorish neighbour's dinner, being so destructive of their appetite as to outrage the hospitality of the house by an abstemiousness irreconcilable with their evident health; and yet these very men will dally with the smell of a pig-pit, hang over "compost' as if it had the aroma of their best claret.

There can be no manner of doubt but that, were it a matter, of competitive examination, the Peerage would gain more marks for really valuable knowledge in the matter of estate management and soil cultivation than for any other subject whatever. The *Quarterly* and the *Edinburgh* hold their own places on the library tables, but the *Agricultural Journal* has its leaves cut first, its pages most studied. Not only are most proprietors now, to a greater or less degree, good farmers, but they are careful to procure tenants who have the capital and skill wherewith to farm well. They have had to work out the problem how best to obtain and retain such men; this has led not only to a wiser, more liberal, more enduring covenant of tenure, but also to a more liberal provision in the way of buildings, in the alteration of fences, draining, &c. The farming-landlord, if he learns something of profits, does not escape experience of loss; the tenant has an appeal on his side, always existing in the trials to which the home-farm submits his chief.

The production at market of beef, mutton, and corn is now literally the result of a system based on pure science. Every well-managed estate is an area comprising a certain number of cultivating factories; whether it is soil to be worked up to carry its crops of corn, roots, pulse, or grass; or bullocks, sheep, and pigs to be worked up to the perfection of what each can carry best for the purposes of profit. There is an amount of machinery in use, of skill put forth, of science brought to bear on the work, which has raised farming from what it was—the refuge of an industry which plodded with little thought to make gains it scarce knew how—to a pursuit taxing every faculty, calling out day by day fresh intelligence, needing considerable capital to be expended liberally and skilfully, and indebted for its success to principles the result of the severest science.

There is not an agricultural county, I believe, in England, in which the face of the earth does not tell of the vast progress made in this most important matter of farming. It is fast turning fields into gardens. The order and cleanliness of the tilth, the neatness of the fences, the luxuriant crops, the well-appointed buildings, the variety, the ingenuity of the implements used, their great value, the application of steam as the master-power of work for the granary, the fold and sheds—all this has come so gradually on us, and yet so coming has so rapidly developed its results, that I think we are scarcely yet alive to the real nature of the rural revolution at our own doors; its onward course seems to heed no check, to be appalled by no doubt. There is at this moment of low prices the most active competition for large farms, and agricultural machinists, reckless of expense, are seizing steam after the manner of Rarey, determined to force that power into more service, to make it sweat its vapour and earn its coals, even at the plough.

What of the tenantry? Just what common sense would have predicted—the demand has found the supply. Men of sufficient capital and enterprise could not have been enlisted as tenants, under the new aspect of things, except on favourable conditions. Improved systems of tenure, combining more liberty to the tenant with sufficient security to the landlord; the prospect of a more permanent, more independent occupation; farm-houses built with reference to the fair demand for comfort and convenience, which men embarking large capital had a right to expect; buildings adapted to the nature and requirements of good modern farming—these have availed to secure to *good* landlords a choice of really good tenants. Such tenants have proved themselves ever ready, as the rule, to follow out on their holdings every practical improvement that experimental farming has develoved. They are a class accused of over-caution; I think them wise in their generation. Farming is their livelihood; its result the per-centage on their capital; they show no backwardness in seizing on improvement in tillage and in machinery which has stood the test of a fair trial; I think them wise, seeing that so many who farm for amusement are content to try new things *at once, if they wait* to see whether that which may only be a theory or a toy turns out a valuable principle, a real auxiliary.

It is the fashion, but one fast going out, to say the present race of tenant-farmers are above their work, that they are too much of the gentlemen; then, they have pianofortes for their families, hunters and four-wheelers for themselves! If it is expedient that a farmer, tenant of 1,000 acres, the owner of steam machinery, with large capital invested in live and dead stock, should be of the same brain-gauge as the old tenant of 150 acres, guileless of anything in the way of machinery more complicated than a harrow, splashing to his door through the muck, liquid and solid, in which his dozen beasts stood up to their knees, but one grade in his intelligence above his men, who were many grades below the stolidest of our present labourers—I say, if, because both were tenant-farmers, the modern man should have preserved the features and characteristic of these straw-yard ancients, then the present race are far too refined, are far above what the standard would imply.

I think it scarcely reasonable in landowners to build houses in which squires of old would have been perplexed by their conveniences, to put to them an amount of land requiring perhaps the immediate investment of some £8,000 or £10,000 in actual cultivation outlay, and then to quarrel with the refinement or independence of the man who, becoming the tenant, places his all on the speculation of a lease, at best often on a precarious "agreement."

Large interspaces are bad on the social surface; it is far better that the tenant-farmer should have his plate, piano, and hunter—should in every outward sign approach the social level of his landlord, than to have an estate with a gentleman at the head of it, the only one at all like a gentleman upon it. There were many grades among the by-gone tenantry, many a real good man among them, with all the feelings of a gentleman beneath an unpolished exterior; but how many more were there of far different character and position? Landlords may rely upon it, the age which finds tenants at home in their drawing-rooms is an improvement upon that which met them shy, clownish, and out of place in the "justice room" of the great house.

I have no hesitation in stating my belief that the improvement of the position of the labourer has profited, and will yet profit, much by the advance of the tenant-farmer to a higher social condition. I know no men who can do more to advance or to retard the progress of *good* in a parish than the immediate employers of the men. By precept and by example their influence for good or evil is indeed great. There may be many exceptions; but, as the rule, I believe each year proves that as the respectability of a tenant is in some sort the pride of the landlord, the decent and upright conduct of the servants of a farm is a matter of honour to their master.

I have no wish to touch at any length on the political aspect of this, the race once so in the van of political agitation; they fought for what they esteemed, what they were bred to think a vital interest. I must do them the justice to say they died hard in the person of "Protection;" let us give them now—we who so differed from them—full credit for the manful way in which, fallen, they fought to rise again.

The careworn soil may indeed deplore the days of long fallows, easy farming; it has since then known no rest. For ever knocked about, it never knows in what form to expect its next blows. Drained of the moisture it treasured in the depths of its old lazy content; pierced with fistulous passages of miles of hard piping; submitted to all manner of scarifying, crushing, drilling; ploughed, and harrowed, and rolled, to the utter confusion and pulverization of its clod existence; every kind of horrible compound that fish, bird, man, or beast can, conjointly or severally, afford, driven into its texture; when early clothed with nature's fresh verdure, soused, irrigated, polluted with liquid extract of solid nastiness—thus abused, it has proved grateful; it has shown its power to meet low prices by quick returns, and has met the depreciated value of its productions by a continued increase of produce.

I have no fear for the ultimate continued well-doing of the agriculturist, for I have no one misgiving as to the power of the soil to so repay every benefit, however nasty, bestowed upon it, that industry will ever reap her due, and in that due find in agriculture a pursuit worthy of the best powers of the wisest, the most active exercise of the efforts of the most energetic, If the improvement in this branch of a nation's economy continues its late evident advance, we have yet to see farming take a still higher position as a branch of scientific industry.

I may in another letter again trespass upon your columns, to speak of the labourer as he now is.

S. G. O.

—Times.

PLEURO PNEUMONIA IN THE CAPE COLONY—ITS EFFECT AND TREATMENT.

We called attention some time ago to the features of that destructive disease, the Lung Sickness or Pleuropneumonia, as manifested in the Cape colony, and which subsequently was brought prominently into notice, from its ravages in Europe. Our last advices from Southern Africa furnish us with some information, which it is, perhaps, desirable to make public here. The agricultural community of the Eastern Province of the Cape Colony, who are chiefly interested in this matter, from their serious losses of stock, sent out, through the Scientific and Medical Society of Graham's Town, a series of queries to the principal farmers, graziers, and breeders of the colony. To these inquiries some sixty or seventy replies were received; and to these we desire to draw attention.

It is chiefly in Africa that we find this disease periodically prevalent, and committing frightful ravages. Australia generally is remarkably free from cattle disease. This murrain has lately reappeared in Ceylon, and was very destructive by the last advices. In Canada and the United States we hear of no complaints of the kind. But among the South African settlers, the Dutch Boers and the Kaffir tribes, cattle are occasionally carried off by thousands; and the disease seems extending far into the interior. The Kaffirs are perfectly at a loss how to manage the disease, and not only so, but a pestilence spreads among them from eating the diseased meat. It is, therefore, highly desirable to obtain as clear an idea as possible of the nature of the disease, and of the treatment, that practice and experience have declared to be the most beneficial.

The general opinion appears to be, that locality has not, as in some diseases, any appreciable effect. Be the farm elevated or low in position, dry or swampy, near the coast or far in the interior, in the east or west, it appears that the cattle are everywhere liable to the attack of lung-sickness; and there is no evidence deducible from the answers before us to show that locality has any power to modify the progress of the disease when it has once seized on its victims.

There is a great diversity of symptoms of the disease; but the following are stated to be the most general:—The animal will carry its head in a peculiar low manner, its neck well straightened, there will be considerable inflammation of the eyes and nostrils, sometimes accompanied by cough, the ears hang—the whole appearance of the animal, perhaps, can best be described as restless and fidgety. In a day or two it refuses to eat. About the eighth or tenth day it begins to swell, and to eat and drink voraciously for a few hours, and then if it dies with the disease at its height, strangulation takes place.

To detect the first approach of the disease seems, however, to be a difficult matter, as the early symptoms are not of so marked a character as to call to the sufferer any special attention. It is much to be regretted, therefore, that the obscurity of the earlier symptoms on the one hand, and the circumstance of the stock-breeder in the colony on the other, should render it so difficult to discover them. For it is evident that the success of curative measures greatly depends on the detection of the disease in its earliest stages. After it has made such progress as to exhibit the more prominent of the symptoms above detailed, one lung is irretrievably lost; and, if recovery takes place, the animal can no longer be regarded as sound.

The next point claiming attention in the inquiry is the question of contagion; for, as upon the consideration that it is a contagious disease, important enactments have been made, it is highly necessary that some definite conclusion should be arrived at.

Although there are a few dissentients, the great majority of the cattle-breeders are of opinion that the disease is highly contagious. In the majority of cases the disease has been traced to contact with sick beasts.

The chief prevention relied upon is inoculation; but even on this point opinions differ. Two methods of inoculation have been resorted to; one in which the operation is performed on the tail, and the other in the dewlap; the former is, however, very difficult to manage. The most general practice now is to inoculate in the extremity of the tail, and then to prevent the serious inflammation that arises from extending upwards into the body by amputation and scarification of the remaining stump. The virus should be taken from an animal that is slightly attacked, for, if taken from beasts that are far advanced or have died from the disease, it will be certain death to the animal inoculated.

The advocates of inoculation insist on the observance of certain conditions as necessary to success; and these are—first, that the cattle operated on must be in good health at the time of the operation, that is, free from the disease altogether. If inoculation be practised on cattle that are labouring under the disease in its first stage, when but obscure external appearances present themselves, it is the united testimony of many observers that the passage of this disease through its several stages is accelerated—the beasts in that case quickly exhibiting the prominent signs of the true disease. As an instance, a Mr. Watkin, who had a herd of 277 cattle, after he had lost 177 by the disease, inoculated the remainder; but these seemed to die quicker than before; being probably already affected by the disease in its first stage.

From twenty to twenty-five days seems to be the period for the maturation of the disease, and hence this in a large herd will have the effect of continually keeping up the supply of contagious influence. To shorten the first period of the disease, and compel all the affected beasts to show the violent symptoms more at the same time, is felt to be in itself a great benefit, enabling the proprietor more effectually to put a stop to its progress.

The second condition insisted on is, the use of virus that has been taken from beasts in the early stage of the disease. At first many fatal mistakes were made by not attending to this.

We have given a sufficient sample of the nature of the colonial evidence furnished in the course of the investigation set on foot in the Cape colony.

We would recommend to the notice of the African stock-masters the simple preventive recommended in our columns last year by Mr. Mayston, of Stanshed Park, Hants, which consisted in a dose of half-a-pound to a pound (according to size and age) of Stockholm tar, with a handful or two of salt mixed, a portion rubbed well into the nostrils. This we found most effectual, and it certainly recommends itself by its simplicity.

We are glad to find that a former suggestion we threw out as to the re-publication of the numerous articles which have from time to time appeared in our columns on pleuro-pneumonia has been attended to. The extended study of the opinions of European physiologists and veterinary practitioners cannot fail to be instructive and useful in a quarter where a person has to rely entirely upon his own judgment and promptitude of action, if he wishes to save any of his herd when the disease shows itself.

MANURES AND CHEMISTRY.

The certainty has been discovered that farmyard dung in the rough condition of freshly voided fæces and unreduced straws lifted from the cattle yards in the morning carryings from the stable and the cowshed, forms the best manure for wheat, and after it has been exposed for weeks and months on the surface of the ground. This fact was established by our very extensive practice on wheat fallows, when the heap of fermented dung having failed to complete the manuring of a field in the end of August, the necessary quantity was supplied from the cowshed and stable doors, and was spread over the surface in the condition of dry straws and fresh excretions. The ploughing failed to cover the rough materials, even after being placed in the furrows by the handfork that followed the plough for that purpose. The land and dung formed a most unsightly condition over the harvest; and a rebuke was administered by my superior in office for exhibiting such a specimen of manuring cultivated lands.

The seed furrow was done in October, by which time the rains, sun, and winds, and atmospheric influence in contact with the ground had commenced a decomposition and a sinking of the materials. After the ploughing, the greater part still remained on the surface, showing a wetted state and a partial decomposition. The seed was sown in broadcast on the still very unsightly condition of the ground; the harrows tore in pieces and scattered the rough materials, which lay during winter over the surface as a not very uneven top-dressing. On this portion of the field the autumn braird of wheat was much more vigorous than the other parts that received the usual quantity of fermented dung that was cool and soapy. The second growth in the spring matted close and thick, a sure sign of prosperity. The colour was a darker green, which was maintained throughout the summer, along with even a distantly-visible heavier crop, in stronger and taller culms, and more plump and larger ears of grain, of a more yellow hue. The harvest showed a thicker stand of shocks, that was very visible to any observation, it bearing a pre-eminence in the quantity and quality of the grain. This result stopped all animadversions, but left no wish for adoption.

Farmyard dung in a fresh condition from the cattle yards is laid on drilled grounds for beans, the ridglets being split by the plough after the beans are sown over the dung. In the county of East Lothian, in the South of Scotland, where bean husbandry is the most perfect, the stubble land is prepared by grubbing and harrowing, so soon as the opening weather will permit in February and March, and the dung is applied in the condition of wetted straws and fresh excretions. At that period of the year, and in the high bean latitudes of that county, storms will occur of snows, frosts, and rains, which stop the proceedings, and leave the land and dung exposed to the weather. During these times the dung has lain in heaps in the drills, and even spread along the intervals, for many days, and even for weeks, where it has been soaked by the snows, congealed by the frosts, bleached by the rains, dried by the winds, and scorched by the suns, before being covered in the drills, and then the crop of beans fully equalled the other grounds that were managed in the usual way. In some cases a superiority was thought to be visible, and the result has occurred sufficiently often to establish a fact from a majority of similar results, and has been most fully authenticated.

My own practice in turnip farming showed, in three cases of different soils and climates, that freshly voided fæces from the cowshed door fully equalled, if they did not exceed, the usual quantity of fermented dung in raising a crop of turnips. The comparison was most fair and decisive.

Bones have been used during my own practice, fresh ground by the mill in the forenoon, and carried to the field and immediately sown. The size was half-inch, with dust mixed that was made by the grinding. I have had bones fermented with urine, and leys, and limes, with earths, and have used the superphosphate, and found the fresh condition the most preferable, and with least trouble, and with the same quantity of each preparation.

On pared and burnt lands the ashes have been carried from the surface where produced, and on that ground the crop of turnips and rape was equal to the land on which the ashes were burned and spread; and ashes have been spread on a pared surface on which no burning had been done, when the effects were most trifling. These results were seen during my own practice, and show that the benefit from paring and burning arises from the heat of the flames raising the temperature of the ground. The ashes being produced by fire, may confer a similar benefit in a small degree.

Lime is a warm body that has been incinerated by fire, and raises the temperature of the ground. Clay is a very bad conductor of caloric, and receives little or no benefit from lime. Sand being a metallic body, receives and radiates the heat very quickly, without retaining the caloric for future benefit, while mixed soils of animal and vegetable matters that have once existed in an organized condition receive caloric in a proper ratio, and retain it for future use. This result is most obvious from every application of lime on clays, sands, and on mixed soils.

Mr. Mechi has said that the days of dung heaps are numbered, in which I agree; and Mr. Hudson, of Castle Acre, in Norfolk, has made the same statement I now write, on farmyard dung for wheat. However much these statements may clash with the chemistry of Kennington or Hanover-square, such facts are stubborn things. J. D.

1st Sept., 1858.

THE LEADING FEATURES OF THE IMPLEMENT DEPARTMENT OF THE CHESTER SHOW.

We now proceed to glance at the important department of steam engines—the mode adopted to test their working capabilities; and the result of the tests applied. The following we believe were the conditions under which the engines were admitted to compete for the honour of the prizes awarded. Portable engines: The diameter of cylinder, for eight-horse engines, not to exceed 9¾ inches; above eight-horse, and not exceeding twelve, two cylinders each, not exceeding 8 inches' diameter. The exhibitors were bound to provide specifications, along with longitudinal and sectional plans, to the Society, these latter showing the action of the fire upon the flues, and the whole affording the following particulars of information: (1) The thickness and quality of the boiler plates; (2) The diameter of cylinder; (3) The length of the stroke of piston; (4) The number of revolutions, and the diameter of the crank and crank-shaft, both of which must be made of wrought-iron; (5) Diameter and weight of fly-wheel; (6) The diameter of driving pulley, which must not be less than six inches wide, nor move at a less velocity than 1,600 feet per minute; (7) The number of horses' power the engine is calculated to work at.

The tubes in the boiler were to be not less than 2½ inches inside measurement, nor less than No. 12 of the metal gauge in thickness. The distance between the tubes not to be less than one inch. The tube plates to be either of "Lowmoor," or "Bowling" iron; with the trade marks of the company on each plate.

The engine to be provided with a good water-gauge, and with a stout piece of pipe tapped to fit the junction of a pressure-gauge. The force-pump not to have more than two valves, and where a "heater" is used, it must be so constructed that the engine will work independently of it.

In "fixed" steam-engines, the (nominal) power entered was not to exceed 10 horses; the diameter of cylinder not to exceed 11½ inches. The exhibitor to supply the Society with plans and exhibitions of the boiler employed by him. Such boiler to possess a capacity of 25 superficial feet of heating surface, and ¾ of a foot of effective fire-grate for each nominal horse-power of the engine. No tubes of tubular boiler employed are to be less than 2½ inches inside measurement, nor less in thickness than No. 12 of the metal gauge.

In carrying out the trials of the engines, they were set to work for a short time with steam at a pressure of 45lbs. to the square inch, and then stopped and suffered to cool down. The exhibitor of each engine was at this stage required to take the working parts of the steam-engine to pieces—in the presence of the judges—to withdraw the piston, valve slide, expansion valve, and pump valves, for examination. Two men only were allowed to assist in this operation, the time of taking to pieces and replacing the parts being carefully noted. When the whole were put together again, the engine was put to the trial in the ordinary manner in connection with the "dynamometer," of which the following description will convey some idea as to its construction and mode of operation. A framing supports two upright pedestals (*a a*), affording bearings for a horizontal shaft (*b*); this carries a vertical pulley (*c*), three feet six inches diameter; alongside of this a large friction-wheel (*d*) is hung on the shaft (*b*); the friction-wheel is embraced with an iron strap (*e*) and friction-blocks (*f*), these being tightened as desired by pinching-screws (*g*); from a point opposite the centre of the friction-wheel (*d*) a pointer (*h*) is attached to the friction-strap (*e*), and from the same point a rod is hung, which supports a dish (*i*), carrying a certain number of weights (*k*). The driving-belt from the driving pulley of the steam-engine under trial is passed over the pulley (*c*) on the shaft (*b*) of the dynamometer, to which motion is thus communicated, a certain weight being placed in the dish (*i*), and the friction-strap (*e*) tightened up by the pinching-screws (*g*) till the pointer (*h*) is exactly opposite the centre of shaft. The whole power of the engine is absorbed in turning the pulley (*e*) and friction-wheel (*d*), its motion of revolution being retarded by the friction generated between the strap (*e*) and friction-blocks (*f*), this friction being maintained by the weight (*k*) in the dish (*i*). These weights become therefore a measure of the power of the engine. The number of revolutions which the pulley (*c*) makes during the time in which the engine is working is registered by a counter apparatus attached to the dynamometer.

In working the engine, for each horse-power at which it is entered, fourteen pounds of coal are given to the engine man, whose duty it is to get the greatest number of revolutions out of it during the time of working, and also to extend the time at which it can continue to work with the supply of fuel allotted.

According to a certain formula, the weights in pounds are calculated which are to be placed in the dish of the dynamometer for each horse-power of the engine to be tried, from four to ten horse, for every ten revolutions, from 110 to 150 revolutions per minute of the engine. The "minutes of duty" which the engine under trial has performed are ascertained thus: Multiply the diameter of the driving-pulley of the engine by the number of revolutions which it is intended to make per minute, and divide this by the diameter of the driving-pulley (*c*) of the dynamometer. Take the sum thus obtained as a divisor, and divide by it the number of revolutions which the dynamometer makes during the time of trial. The "minutes of duty" thus obtained are used to ascertain the "duty" performed by the engine, as expressed in the pounds weight of coal consumed per hour for each horse-power of the engine.

In ordinary cases the duty of a steam-engine is calculated at 6lbs. of coal consumed per hour for each horse-power. In many engines, however, a much higher degree of efficiency than this is obtained. In the celebrated pumping engines of Cornwall, by using steam expansively, and by due attention to boiler arrangements, a "duty" is obtained expressed by 3lbs. of coal consumed per hour per horse-power—this, even, in some instances, being surpassed by some engines, which give a "duty" of 1¾lbs. per hour per horse-power. It is a matter affording not a little gratification to those interested in the progress of steam as applied to agricultural purposes, to know that the results of the "trials" of agricultural steam-engines at Carlisle and Chester have shown that they can display "duty" as satisfactory as the Cornish engines above referred to; some of them giving a duty so high as 3½lbs., others of 4lbs. and 5lbs. per hour per horse-power.

The practical farmer should not, however, expect to obtain a duty so satisfactory as that displayed by the result of show-yard trials, in the ordinary every-day work of the farm. He must remember that the engines exhibited are in the best possible condition to do good work, with all parts new and in good order; clean, unfurred tubes; and supplied, moreover, with fuel of a much higher quality than is generally used in practice. Carefully as the "trials" are now gone through, and much as the results may be depended upon, we nevertheless think that "results" of a much more highly practical nature would be obtained, could some system of trial be inaugurated, the peculiarities of which would be as much as possible in accordance with those of the every-day practice of the farm. There are many points of infinite importance to the farmer, which cannot be tested or even brought out for consideration in the ordinary routine of the show-yard trials. These must be eliminated through continued practice—that practice which alone can show the difference between a machine or implement fitted to do its work under the rough handling or the awkward management of the ordinary farm labourer, and one which is best calculated only for the comparatively elegant and gentle treatment of the show-yard. The result of a show trial, unfortunately, is not always an index to the value of a machine or implement in the field or in the steading. The nearer, therefore—we incline to think—we bring our trials to answer the condition fulfilled by ordinary farm practice, the more valuable will be the practical results to the farmer. Without being in any way desirous to find fault captiously, and while gladly and gratefully acknowledging the great benefit resulting to agriculture from the shows and their trials carried out during the last twenty years, we are nevertheless constrained to confess that the present "system" of "trials" is one which demands careful and instant revision; taking it out of the region of dilettantism in which much of it dwells, and placing it in that of every-day practice. Trials conducted during a period of time in which it is utterly impossible to eliminate the peculiarities of working of an implement or a machine, or of its capabilities to meet all the exigencies of daily practice—and conducted, moreover, under circumstances, in many cases, the opposite of those met with in the ordinary routine of farm-operations—can never be productive of "results" which can be unhesitatingly accepted by the farmer as an evidence of their practical value. A report from a brother-farmer as to the working of a machine which he has severely tested under all circumstances of practice, favourable and unfavourable, and which has stood the test, will be more valued by the farmer anxious to purchase than all the evidences offered by the prize-list, or the results of the trials of the show-yard, conducted on the present system; which, although we believe that it is carried out faithfully and anxiously, is not expansive enough in principle to embrace all the points desiderated by the daily-increasing and all-important wants of the farm.

These remarks, although induced by the subject of the steam-engines trials, are not meant to apply solely to that department of mechanism—the battle-ground of many disputants, in which the hard blows, but sometimes little of the "gentle courtesies" of the "lists" of old, are given and displayed—but are designed to embrace the whole field of agricultural *implements,* using this term in its widest acceptation.

A full critique of the steam engines entered for competition, their peculiarities of arrangement, and the results of the "trials," having already appeared in the columns of this Journal, as also a notice of the thrashing machines—the only special department we have not yet adverted to—we have little else to do now but to congratulate our readers, despite our apparent fault-finding, at the results of the Chester Show, those having immediate reference to the grand agent of steam. "With its happy exemplification," as we have elsewhere remarked, "of what the steam engine can do for the farmer, in thrashing his grain, in preparing it for market, in crushing the corn, cutting the fodder, pulping the turnip, or, above all, dragging the plough—the Chester Show may be said to be the apotheosis of steam as applied to agriculture. It was *the* grand feature of the great gathering of the votaries of Ceres. Before it, all other points of interest 'paled their ineffectual fires.' It has not only afforded an opportunity to show what steam *has done* for agriculture, but it has yielded unmistakable evidence of the much greater things it *can yet do.* It has pointed out fully and fairly the direction in which future efforts must be made if rapid progress in the future is desiderated. It was the inauguration of a new era, bright with the hopes of difficulties encountered but to be overcome; of a time fast approaching when the desert shall be made glad—when dull places, sad and sterile now, shall be bright with the trophies of peaceful and lightened labour—when great tracts shall be wrested from ocean's hands, and instead of waving sea-weeds or marshy plants, be made to yield to the sounding scythe, or the rapid reaper shocks, of the smiling corn—when the marsh shall be freed from its stagnant waters, and the black moss made green with verdure — when the valleys on the hill sides shall bear their burden for the food of man, and the very hill tops—as prophesied in holy writ—shall be crowned with a golden diadem waving to the winds that sweep their sides. R. S. B.

THE AGRICULTURAL LABOURER, AND THE PRIZE SYSTEM.

The impertinent way in which we now meddle with the labourer's rights, privacy, and privileges is something quite monstrous! Landlords are anxious to build him better cottages. Agents tempt him with accommodation land. Farmers publicly acknowledge his good services; and clergymen and others insist on more opportunity being allowed for the education of himself and his family. It is a melancholy fact that we will not leave him alone—that we are not content with paying his wages and then to have done with him. Acting on the strictly commercial principle of supply and demand, there is little doubt but we are wrong. It should be a question of mere barter—of buying and selling his labour, and no more. Instead of this, we are continually prying about to know if he is comfortable; discussing, perhaps, amongst ourselves how his state may be improved, and openly offering the same respect to a good servant who has done his duty, that we should to any other man, however high his pursuits or his ambition.

The long list of autumnal gatherings has about come to an end, and Mr. Gibbs is whipping up attractive names and entries for the opening of the winter season. It is seldom that these local meetings have generally gone off so well, and never before was the good they are susceptible of so universally admitted. But there may be a flaw in the finest piece of workmanship, a hole in the best of coats, and the agricultural character not quite without a stain. In the midst of these proceedings, when country squires and the neighbouring farmers are mutually congratulating each other on the progress their society is making, some such interlude as this occurs: — The president of the association, sheltering himself behind a corn stack, or perched in all the pomp of place on the tail of a waggon, collects around him a secretary and some few other such manifestly official personages. Backing these is a bevy of labourers—to be called up in due turn to receive that reward their merits have entitled them to. One is the best ploughman, another a good shepherd, and the third famous as a hedger, or the neatest of thatchers. Then, there are others who have lived a long round of years in the same service, or fathers of families who have brought up their children with that best of all examples—self-respect and self-reliance ever before their eyes. In short, the business of these high days is not confined only to distinguishing those who must be the chief supporters of them—that is, the landlords and farmers themselves. On the contrary, the labourer has equal chance of a premium and honourable mention. And it so often happens that the man who leads home the prize bull, or the shepherd in charge of the best pen of sheep, has a prize to take on his own account. We can imagine nothing more gratifying or mutually grateful than such a double triumph.

And yet this is all very wrong. What right has the farmer to interfere with the poor labourer in any such way? What does he mean by degrading and insulting the man by calling him up before his fellows to receive a few paltry pounds? If a servant has been a faithful one, it is his own master's duty to recompense him, and certainly not that of an agricultural society. Fancy giving a man three sovereigns for thirty years' service! Or paying your petty compliments to another who has brought up his family without asking you to help him! while "prizes for hedging, draining, and the like, can never be seriously regarded as affording any reasonable expectation of inducing improvement." Throw the money back in the face of him who offers it you; or if any be mean enough to receive it, let every jolly, idle, independent, poaching vagabond hoot and deride the prize-taker as he reaches home again. There are many who would want but little inducement to do so; and certainly for some years now there has been no lack of such prompting, more or less directly offered.

The effect, however, of this continued hostility is both curious and suggestive. There is no such dangerous weapon, we are told, as ridicule; but for once at least, it has failed. A certain portion of the Press—the many, cameleon-like, taking their colouring from the one—have been systematically laughing these premiums for agricultural servants out of use and repute! And with this remarkable statistical result—there are now more thriving practical agricultural associations, such as those whose real purpose is the advance of agriculture, than ever there were, and there is scarcely one of these but has a series of prizes for good conduct and workmanship! There are gradually more and more men found to be competing in these classes; and there is not a speaker at one of these gatherings—president or employer, judge of work or country clergyman—but who testifies to the good such a means has conduced to. The essayist, then, who asserts that these rewards for skilled work do not tend to improve the character of that work, speaks with a whole country full of facts against him. He who declares that the best of the country gentlemen do not give their support to such proceedings, is as wilfully wide of the actual facts of the case. He must shut his eyes to the more prominent points of every report he reads. Then, again, as to the absurdity of giving a man two or three pounds in return for twenty or thirty years' servitude! Why, we do nothing of the kind. Do we offer a medal to the soldier as the *pay* for the battles he has fought? The books or Degree as the *all* to the scholar for the proficiency he has displayed? The only absurdity is the advancement of such an argument. The very emblems of Peace and War are the Sword and the Plough, and surely it is as good to honour the man who excels in the one art as in the other. But the proper way to honour him is to pay him better. Exactly so, although, unfortunately again, but a tu quoque showing. The two or three pounds may be of some use, we readily admit, to the farm-labourer, while the medal cannot be so readily turned to account by the soldier, simply because especial care is taken to prevent his disposing of it. But we trust we should be the last to disparage such a distinction, whoever may have earned it; and we would say of the soldier's reward of merit what Mr. Buller lately did, down in Devonshire of the labourer's: — "It is a token valuable not only through this day, but for the remainder of his life."

"It is quite a mistake," said a farmer in Bedfordshire to us at one of these meetings, "for you gentlemen of the Press to laugh at these rewards for labourers. You haven't the chance of seeing the good they do." We agree with him that it is a mistake; and we wish especially *not* to be classed with that portion of our contemporaries who indulge in this irrational ridicule. Fortunately, we repeat, it has not had the least perceptible effect. Neither landlord, employer, or labourer—president, secretary, or committee-man, have taken the slightest heed of such abuse; or, if they have, it has been only in increased energy, and determination to show how uncalled-for this has been. One might almost wonder how such a course could have been continued; but we suspect what Mr. Chowler said at Collingham was rather near the mark—"His own impression was that they attacked these societies simply because they had originated with the agriculturists. If they had originated with the towns, probably they would have been all right; but having originated with the country people, it did seem to him that nothing sufficiently strong could be said in their disparagement."

At the time when an Agricultural Society meant a Protection Society the orders no doubt were to turn everything into ridicule: hence the attack on any concomitant feature in the proceedings. But Protection has now become history, and the farmer is commanded to conquer his prejudices, and to adapt himself to the spirit of the age. We may say with an honest pride that he has done so. But is there no one else with prejudices to conquer? None still apt to call the agriculturist hard names, that might find a more fitting application for them nearer home? Who, in this very instance, is it that is obstinate, pig-headed, and wilfully blind to what the country is doing?

ESSAY ON INTENSIVE CULTIVATION.

TRANSLATED FROM THE FRENCH, FROM THE "JOURNAL D'AGRICULTURE PRATIQUE."

"It ought to be generally known that every couple of hectares, subjected to this system, will in some seasons double its cereal produce."—*Le Comte de Gasparin.*

SIR,—After reflecting for a long while on the advice given in the *Journal of Practical Agriculture*, by M. le Comte de Gasparin, our illustrious master in all things, I determined to try upon a small space of about twelve hectares the biennial course of cropping, consisting of an alternate cultivation of cattle food strongly manured, and a crop of wheat.

I divide the forage crop into five sections, namely: roots; maize for seed; broad or horse beans; cow cabbages; and annual herbaceous plants, chiefly a mixture that we call "winterage" (*hivernage)*, and which consists of winter tares, winter lentils, grey peas, and a little rye.

This course receives, before winter and during the current season, a hundred cubic metres of dung per hectare, and over and above, for the maize, a half manuring in the spring before the last hoeing.

In commencing this system of culture, it was at first necessary for me to purchase manure; but the production of cattle food having accrued much more rapidly than that of wheat, I have been able to increase the number of my animals, and have succeeded in producing on my own land the necessary quantity of dung. To this I add only the sweepings of our village, which I now farm, and the night-soil, which is given to me, and costs only the expense of drawing and disinfecting.

I am thus now enabled to feed abundantly, and without purchasing forage, two head of large cattle, or their equivalent in pigs or sheep, per hectare of cultivation. The former consists of three draught horses, eight cows or heifers, a she-ass, fourteen sheep, and a piggery, comprising a boar and three sows with their families, besides some fatting pigs. My sheep are *Berichonnes* improved by four generations with rams of the Charmoise breed. I procured these from my excellent neighbour and friend M. Malingié, the manager of that school farm, who continues so worthily the work undertaken by his illustrious father.

I have heard two principal objections against this course of cropping: 1st. "Whatever care," they say, "may be taken to prevent the impoverishment of the soil, wheat cannot without inconvenience be cultivated every other year on the same land. We are always able to supply, by manuring, the azotous matters taken from it, in sufficient quantities. But we are not so certain of being able to prevent the weakening of some of the mineral principles necessary to the formation of the grain, and above all, that of the straw, especially silica in a soluble state, and hence those wheats which shed their grain in consequence of the weakness of their stalks."

2nd. "That course of crops which on principle excludes oats, provides no nourishment for horses."

My reply, founded upon practice, to these two objections, which are far from invalid, is as follows:

In the first place, I return to the soil all that I take from it, with the exception of a portion of the wheat and meat sold away; all the rest being consumed in the house by the family, or by the cattle, sheep, &c. The straw, the grain, the roots, and the artificial forage return in great part to the land;

and as I add to that the produce, in dung, of the hay of my natural pastures, that of divers food consumed in my house, independent of those supplied by my land, and still more, the sweepings and night-soil of the village, saying nothing of the atmospheric manure, I have reason to hope that my land annually receives more than it has lost, which in other respects is confirmed to me by the continually increasing fertility of my fields.

At the same time, not to affect to contemn opinions which are not destitute of authority, I will make this concession: when a field has produced four harvests of wheat, although I may perceive no diminution in either the quantity or quality of the grain or straw, I withdraw it for some years from the biennial cropping, planting first potatoes, always the autumnal, which for four years past has, with one exception, caused the disease completely to disappear, even in the "yellow round" of Holland. Afterwards barley laid down with sainfoin, which succeeds admirably in our calcareous lands, and yields for four or five years 5,000 or 6,000 kilos. of fodder, and 12 to 15 hectolitres of seed. On clearing off the sainfoin, I sow an oat which returns from 50 to 60 hectolitres per hectare, after which the field is again, with a strong manuring, brought into the biennial cropping.

This feeble and accidental production of oats, which would be far from supplying the consumption of my horses, brings me naturally to the second objection.

I might confine myself, in replying, to saying that, if I make a profit by selling wheat and purchasing oats, I cannot be blamed for it; and that, even supposing the biennial system to be the best in practice, many years will pass before its universal adoption will prevent me from finding a supply of oats on the market.

This somewhat too personal reply would have no great value, as a principle; I therefore shall give another:

I began, indeed, by purchasing oats; but I soon put the question to myself, whether that grain was absolutely necessary for feeding horses, and whether it was not possible to feed them otherwise in such a manner as to preserve not only their good condition, but also their vigour and ardour, in the midst of rough and continuous labour.

I have seen horses fed in so many ways in different parts in which I have lived, that it is difficult for me to admit this exclusive necessity; and I think I have succeeded, without leaving the produce of my own course of crops.

I bruised maize and beans, and mixed them with the small quantity of oats I had, also bruised, observing the proportion of one volume of maize, or else half a volume of beans, to one of oats. My horses throve so well on them, that I have left off purchasing oats. Taking for the standard of alimentary ration one decalitre (rather more than one peck) of oats per day, besides hay, bran, and half a decalitre of field carrots, I give in place of the oats five litres of maize and two-and-a-half litres of beans.

This allowance of food for my draught horses, which supports them in the midst of the most laborious work in a remarkable state of health and vigour, is modified during four months of the year by the partial substitution of Jerusalem artichokes for the grain. I shall speak presently of my cultivation of this root; but for the present I have this to say of it—I have always thought that it should only be given to cows, pigs, and sheep, although with much caution to these last. One of my neighbours, M. Fevie, a skilful and industrious farmer, assured me, two years since, that he knew from experience that draught horses may be safely fed on them; that the Jerusalem artichoke, independent of the saccharine matter, contains also, under its rind, like oats an aromatic and stimulant principle; and that he had seen in Flanders, horses, exclusively fed with it during a whole winter, go through the hardest labour, not only without wasting, but preserving themselves in excellent condition. Without either adopting or rejecting the theory of nutrition by Jerusalem artichoke, I tried the practice last winter, with some misgiving at first, by reducing half the allowance of grain, substituting for it a double volume of artichoke. I found this succeed so well, that I continue it without hesitation this winter, and shall probably entirely give up the corn eventually, so long as the Jerusalem artichokes last.

In respect of oats, my horses get none, except when it happens that they are clearing off a piece of sainfoin or meadow hay; and I am convinced that if they were called on to give their opinion, they would prefer the kind of food provided for them by the biennial course of cropping.

Whilst speaking of Jerusalem artichokes, I wish to add a word on the cultivation of this precious and economical supplement of feeding. I began, according to the precept of the master's, by detaching from my crops a small piece—a quarter of a hectare—which I tilled and well manured. I obtained ten cubic metres of tubercles, which makes 400 hectolitres per hectare; and also, in the leaves and stalks an abundance of food for sheep. Then in the second year, I met with a difficulty. I had read that one of the principal advantages of this culture, was that it cost only the expense of the first planting, with a dressing of manure every two or three years; and that the Jerusalem artichoke will then sufficiently seed itself. I did not doubt this, having frequently seen it so myself. But the question arose, whether this practice—although evidently the best when we use the artichoke as a make-shift, and sacrifice to it a large extent of land, of poor quality, the careful cultivation of which would cost more than the produce of other plants would warrant—would be equally advantageous when we employ a small portion of excellent deep rich land, situated at two hundred metres from the centre of the farm? In a word, whether intensive culture, the design of which is to draw from the smallest possible extent of land the greatest possible mass of produce, by continually increasing the richness and fertility of the soil—if this intensive culture ought to be applied to the Jerusalem artichoke as well as to the rest? My farming steward, who is as intelligent as he is honest, insisted strongly on this view of the case.

To avoid working blindly, I prepared my patch of Jerusalem artichokes the second year as soon as the tubers were consumed. I manured the whole, and left a portion of about one-quarter without fresh planting, but replanting the rest exactly as the first year. The artichokes have put out again well in the band that was not replanted; but the difference in the height and strength of the stems, as well as in the abundance and beauty of the tubers, between this part and the other, have quickly decided me to replant every year, because the small expense it involves is largely compensated for by the increase of the produce.

Some would, perhaps, be surprised at my reasoning so much upon my crop of maize, and that in the midst of central France, where it so often fails to ripen. This year particularly, I am the only one in my neighbourhood with whom it has succeeded. This also is the result of a hint I received some years ago from your excellent Journal, in an article, I think, from the pen of M. Lelieur.

Thus, in late seasons, when the month of October arrives, and it is necessary to think about sowing wheat, many of the grains (of maize) are still, in part, milky, the saccharine not ,being entirely transformed into starch; and if I gathered the ears in that state, those grains would shrivel and remain imperfect, even if they did not mould. I do not, therefore, gather the ears, but pull up the stalks, and dispose them in bundles round the field, which I then till, and sow with wheat at freedom. At the end of about fifteen days the grains are dry and full, and I then gather the ears, and strip them, when "*a la Toussaint*" they are fit to shell. And yet, on account of its large produce, I cultivate only the large yellow, one of the latest species.

I may be told, and have been so already, that it is an extravagant practice to feed horses with grain the value of which is greater than that of oats; and that it would be more profitable for me to either sell my maize and beans and purchase oats, or to grow the latter myself.

To the first alternative I reply, that it might be reasonable, if maize and beans had a commercial value in the country in which I live. But it is not so; and if I took them to the market, I should be the expense of the journey out of pocket. These two products, therefore, not being convertible into cash, must be carried into the consumption of the farm, not at the value they bear in the averages, but at their simple cost price, as we do with carrots and turnips, and as is done with beetroots and Jerusalem artichokes when they are not taken to the door of the distillery.

Now, then, cost price—and this is my reply to the second alternative—is more advantageous to me than would be that of oats, because these fallow crops, by the admirable way in which they prepare for wheat, are paid for, and more, by the extra value of the crop which succeeds them, and by the increasing amelioration of the soil.

Manure applied directly to wheat has many inconveniences. First, we are obliged to modify the quantity of it, under pain of reaping only straw; whilst with beans, roots, cabbage, and, above all, maize, we may, without fear, double or triple the manure, and the produce will always rise in proportion. If manured afterwards, the dung would foul the land by the quantity of different seeds which it would bring to it; whilst the cartage of the dung, before the last ploughing in the field intended to receive the wheat, destroys in part, however moist the weather may be, which is frequently the case, the mellowness of the soil imparted by the preceding process. Instead of that, when wheat succeeds a weeded crop which has received an abundant dressing of dung, it finds a rich soil perfectly mellowed and cleaned by the second tilth and weeding of the summer. All the work is performed in advance, and done better, and nothing remains to be done but ploughing, harrowing, and rolling. No adventive plants in the wheat fields, no foreign seeds mixed with the grain. My sorting roller is only useful to separate the finest grain for seed, for the eye cannot discover in my heap of wheat any other grain than wheat.

My wheat harvest, however, has this year yielded me, as a general average, only 30½ hectolitres per hectare.* But there were many worthless ears in consequence of scalds and failures, which have lowered the average. One field has returned nearly 52 hectolitres per hectare.† This field, which was sown with winterage, was in its fourth year of wheat. Next spring it will be planted with maize, in order to bring it again into wheat the following year. At this time it bears as a stolen crop a sowing of colza for forage, which will be consumed during the winter.

The maize and roots have also suffered much this year, both from the cold and humidity of the spring, and the protracted drought of the summer. They have generally failed in my neighbourhood, and in them also I have had many worthless plants. In the meanwhile—thanks to the combined power of abundant manuring, drainage, and deep ploughing—my roots have yielded nearly 84 cubic metres, and the maize, which is not yet shelled, but according to the number and appearance of the ears from 50 to 60 hectolitres per hectare.

I have not, therefore, yet realized the promise of le Comte de Gasparin, but I am yet only at the commencement, and the season has been against me. That promise of our venerable master I have always in view, as the end to which I do not say *all* cultivators should aim, but all those who are placed in conditions favourable for practising intensive cultivation, and, I repeat in conclusion, as being able alone to give some value to what I have written:

"It is right that everyone should know that each couple of hectares, subjected to this system, will, in some seasons, double its cereal produce."

R. Du Chambon de Mesilliae,
Husbandman at Pontlevay,
(Loire-et-Cher.)

THE REFORM MOST WANTED.

At the Knighton and Temeside Association, the chairman (the late Chancellor of the Exchequer), Sir G. C. Lewis, and others of the meeting, made extensive speeches about Parliamentary Reform, to the almost exclusion of those other topics for the advancement of which the Association was formed. Happily the toast of "Success to the Agricultural Labourer," which is so often drunk, and so often as quickly forgotten, was intrusted to the care of the Rev. T. Green, who truly remarked that—"It was to the exertions of the agricultural labourer they were all much indebted for the common necessaries of life. They might have good implements and improved manures, but much depended upon the agricultural labourer, and it behoved them to make their labourers skilful, honest, and industrious. 'Reform' being the general topic of the evening, let them consider it as regarded the agricultural labourer. This meeting should be a sort of review of what had been done in the past year, and he would ask, Is the state of the agricultural labourer what it should be? Their object should be to make the labourers more worthy of being represented, and the poor-law statistics would show that there had been an improvement in the condition of the agricultural labourers. But a glance at their cottages would suggest a subject for improvement or reform, for though there were many really commodious and nice clean cottages taking the place of wretched, miserable huts, there was still much to be done in that direction, for many of the habitations of the labourers were unfit for the beasts they tend. He trusted the improvement commenced in that direction would still go on; because if the labourers were not provided with proper house accommodation, how could they be expected to bring up their children with decency or with any attention to moralty? The rising generation would grow up from their youth without any idea of morality, and the consequences would be seen and felt in a degraded population, increased poor rates, and the growth of a race of servants virtually good for nothing. It was not an exclusive question for the consideration of landlords, or clergymen, or farmers, but primarily they must work altogether, and after that the agricultural labourer must work out his own reform. Those who attempted these improvements must not be discouraged if at first but little fruit followed their labours; they must remember the way in which the labourers had been brought up, and not expect to work wonders all at once. If they failed at first in effecting great results, they should go on: use their labourers fairly, provide them with decent houses, and pay them fair wages. The result would be that they would have better servants, and would have assisted in making a contented, moral, and industrious people, which would be the greatest blessing England could ever boast. Thus they might safely go on in the path of democracy, and confer upon the labourers that share in the representation which all wished them to have."

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* About 34 bush. per acre.

† 47 bush. per acre.

The same subject was alluded to at the Royal East Berkshire Society by the Hon. P. P. **Bouverie**, M.P. He said—"It was true that of late years much had been done to improve the condition of the labourers, but much yet remained to be done. There was a problem arising out of the present state of society, which had been mooted on other occasions, and which he thought ought not to be forgotten. It was a problem that was at the bottom of our social system, and without it they would not see that advance in the moral improvement of the people which they all desired. He alluded to the subject of the labourers' cottages. It was a problem not yet solved how cottages could be built, and the expenditure, or the interest of it, be met by the labourers at their present rate of wages. In plain terms, could gentlemen build cottages such as labourers ought to have, and look for such a rent as would be a return for the capital expended? He was confident that there was no one thing in our social system that was more capable of improvement, or more at the foundation of all the moral improvement in this country than providing suitable houses for the working classes. They might make educational efforts, and do everything else they could; but as long as it should be a fact that the labourers could not afford to pay the interest of the capital expended in building for them residences which would enable them to bring up their families in decency, so long there would not be that improvement in the habits and conduct in the lower orders of life. He was glad to know that many gentlemen were endeavouring to improve the cottages on their estates, but it was an expenditure of money that they could not expect the common labourer to pay the interest of. He was putting up some new ones on his property, in Somersetshire, and his plan was not to have less than three bed-rooms. He mentioned this subject, hoping that by drawing attention to it something might be done to improve the cottages of the labouring poor. He observed that this society gave premiums to industrious labourers for the good cultivation of their gardens, and for neat cottages. This he believed to be an important object, as, by encouraging industry and cleanliness, they might hope to see the young grow up and become good labourers. He was much pleased in attending this meeting, and he trusted that the society might continue to be a lasting benefit to the agricultural labourers of the district."

Mr. R. W. **Grenfell** also said—"Mr. Bouverie had remarked with great justice that there was a great dearth of accommodation for labourers in agricultural districts generally, and he thought that as the Prince Consort and one or two gentlemen in that neighbourhood did their best to promote the interests of the farmer by offering prizes for the improved cultivation of land, he would suggest to the tenant-farmers they would do well if they combined together to offer a prize to the landlord who should erect cottages on the most economical plan, and that would most tend to the proper comfort of labourers. (Laughter.) It was a crying sin in this country—it was not so much so now as formerly—when, from selfish feelings, the landlords and tenants joined together to pull down and destroy the cottages in the country. Without at all being egotistic, he would mention that his family were erecting new houses for labourers on their property in Wales. They paid £1,670 per week to the persons in their employ for wages, and last year they laid out £3,300 in building new houses for them. They received no rent for the cottages, for there was such competition for the labourers that it was of the utmost importance they should get good and steady workmen. All the houses were built with three bedrooms, and the requisite rooms and outbuildings below. The men were so satisfied that they now said, 'We will never leave you; because we can live decently, by separating the boys from the girls.'"

SYMONDSBURY HARVEST-HOME.

Men of sinew! hale and hearty!
  Brave at scythe and sickle, come!
Come and swell our gleesome party!
  Reapers! sturdy reapers, come!
Time for all things, this for leisure;
Time for all things, this for pleasure!
  Sing our merry Harvest-Home.

Mothers meek! home troubles leaving,
  Join your husbands' joy, and come:
Honour, love, respect receiving,
  From the honest-hearted, come!
Nought unmeet for woman's bearing,
Nought unmeet for woman's hearing
  Blots our merry Harvest-Home.

Maidens modest! fear no roughness;
  Fathers, brothers are we; come!
Kind and true, despite our bluffness:
  Maidens modest, come, then, come!
Far away be thoughts of lightness;
With your own unsullied brightness,
  Maidens, bless our Harvest-Home.

Aged folks! our hamlet's glory,
  Dames and grandsires! all must come;
Come and tell again the story
  Of the days long bygone; come!
Ye who with life's ills have striven,
And to whom now rest is given,
  Welcome to our Harvest-Home!

Laughing children! lend your rattle
  To our merry-making; come!
Good to hear is childhood's prattle:
  Children! merry children, come!
Ye have work'd as hard as others,
Gleaning proud beside your mothers—
  Ye must share our Harvest-Home.

High and low! with one another,
  Young and old! come join us, come!
Each to each, in God, a brother,
  To our village High-Day come!
Well it is that harvest labours,
Richly crown'd, should bind all neighbours
  In a thankful Harvest-Home.

FOOD AND MANURES.

In the descriptions that are now made of organic bodies that are used for food and applied as manures, there is always given, along with the natural properties and practical value of the article, the chemical analysis of the bodies, which shows the value of the composition in the number and quality of the constituent principles. But every theory yet advanced on this point, has been proved to be wholly fallacious, by means of the truths of practical experience. The most recent scientific arrangement of the constituent parts of organic bodies places the elements in two divisions:—Nitrogenous, or flesh-forming principles; non-nitrogenous, or free from nitrogen, and producing respiration, heat, and fat. Among the latter, starch is abundant, with sugar, gum, fat, wines, beer, and spirits. The former, or the strictly nutritive substances, contain vegetable albumen, fibrin, and casein, with animal flesh and blood. A third class comprehends the inorganic substances—water, salts, iron, &c. All food is thus nitrogenous (or nutritive and flesh-forming) or non-nitrogenous (or heat-making).

This brilliant fallacy has obtained almost the entire possession of physiologists, who decided that the percentage of nitrogen, large or small, in alimentary substances, affords a correct estimate of the value, except where gelatine enters very largely into the composition. This division of food meets with no objection, as it is a chemical fact: but the presence of nitrogen being made the test of value, and all albuminous substances forming an essential proportion of organized tissues, a striking example is seen of chemical reasonings applied to physiology, which a simple confrontation with nature suffices to upset. Albuminous substances are certainly present; but a larger quantity is essential in non-nitrogenous matters, as oil and salts. Wheat contains only 2.3 per cent. of nitrogen; whereas beans contain as much as 5.5 per cent.; lentils 4.4, and peas 4.3 per cent.; and yet, with this inferiority in the quantity of nitrogen, wheat is very remarkably superior in nutritive value to the latter plants. In this case, experience flatly contradicts the standard that is applied. It is well known that in the animal kingdom no two organisms of the very same kin and descent possess an equal capability of assimilating the same substances; and it may be inferred that vegetables are similarly endowed. Vital phenomena depend on processes that cannot be explained by chemistry, and may be supposed to be very unlike the processes of our laboratories, and demand other tests.

> "From higher judgment seats, make no appeal
> To lower."

Such is the appeal now made from physiology to chemistry. The chemists may proceed with their labours, analyzing, weighing, experimenting, and propounding hypotheses: no doubt much aid will be obtained; but no physiological problem will be solved, though it may leave the hope of doing more. Physiology must employ chemistry as an assistant to analyze—fat, for instance; but not to trouble with any hypothesis about the part played by fat in the organism, or how itself is produced. The assistance of chemistry is indispensable to the vital laboratory of physiology, as a means of explanation, not of deduction; as a pillar, not a pinnacle; an instrument, not an aim. The two laboratories are most diametrically opposite, and admit no unanimity or precision.

Chemical analysis may conduct to the threshold of life, but there all its guidance ceases. A new order of complications intervenes; a new series of laws has to be elicited. Chemistry is only able to say of what elements any substance is constructed, not how the agency is performed. Any attempt to explain the nutritive value of articles as food, by an enumeration of its constituents, must belong to "the physiology of probabilities." The cardinal rule is ever violated in our gropings towards the light—"Never attempt to solve the problems of one science by the order of conceptions peculiar to another." Every art and science has its own peculiar conceptions and philosophy, by which it is understood and advanced. The knowledge is indispensable of the physical and chemical laws that are implied in the vital processes; but over and above, there are the specific laws of life, which cannot be deduced from physics and chemistry.

The nitrogenous theory has yielded the acknowledgment, that nitrogen is nutritive "only" in peculiar combinations. The consequence is inevitable.

The proportion of plastic and non-plastic materials, or of nitrogen and the absence of it, has only to be observed in many cases, and the result never fails to pronounce against the theory of division. In rice the ratio is 10 to 123, in beef 10 to 17, requiring ten pounds of rice to one of beef to obtain the flesh-forming materials; and then, how dispose of the vast quantity of respiratory materials? The body would be entirely burnt up by such an enormous heat, which does not seem to differ in cold or hot climates. Nitrogen may be derived by the plants from the atmosphere, as well as from the soil and the manure; and, till that point be decided, the nitrogenous theory rests unconfirmed.

Potatoes are stated to contain more than double the quantity of flesh-forming and heating principles that are found in turnips; yet turnips are well known to fatten cattle much better than potatoes, except when boiled or steamed for swine. Cabbages and beetroot are stated to be equal, if not superior to turnips; yet practice finds those articles to be inferior for fattening. Carrots and parsnips are stated to be very much superior to turnips, the latter article almost sevenfold, being nearly equal in the elements of forming flesh, and of giving heat; yet practice finds the very reverse, and prefers the turnips in the largest utility. If the amount of percentage fixes the value of any article as food, then a high place must be given to water in the 90 per cent. found in turnips and potatoes: it being hard to conceive that this large quantity does not operate a most important part in the construction of organisms. And the presence of this element is universal in a greater or less amount and proportion. Water may be regarded as the matrix or mould in which the other articles are compounded to exert the joint purposes of action.

In all cases now mentioned, it is not the presence or quantity of the elements that confer their value, but the mode, way, or manner, in which the principles are combined among themselves, and with other matters. The just and reasonable inference seems to be, that a share of mixed nutrition is afforded by the various elements found in organized bodies, nitrogenous, heat-making, and inorganic; and that no single result is effected by separate elements, but by a joint contribution of the united principles, in which all differences are annulled, and one similar result obtained. Whatever character the substances may have *outside* the organism, they must quit them shortly after their entrance *into* it, putting off specific differences, and merging all varieties in a vital unity. This deduction is not exposed to the falsifications from practice, and withstands all examinations.

The same fallacy is found in the chemical reports on the value of the grass plants. For instance, several plants are stated to be very much superior to the common ray grass in chemical constituents of nutritive value; but whatever that value may be, practice is satisfied that no grass plant, yet known, is so valuable for the purposes of the farmer, in growing readily on the greatest variety of soils, in yielding a good bulk of produce in a number of stems of medium height in the manner of a grain crop, and a quantity of sound healthy seed that is easily gathered and conveniently manufactured. Chemistry made a most miserable failure in the attempt to fix the character of grasses: the ray grass is established on the grounds of true science, on the science of agriculture itself, which is the systematic experience of it. On this foundation the structure of comparisons and results must be built.

Whatever the future progress of chemistry may effect in the way of simplifying physiological problems—and none may doubt very large assistance from its co-operation—there is one radical distinction, which will continue to keep the two sciences separate. Chemical laws are *quantitative* because chemical actions are *definite* combinations; whereas physiological laws can never become *quantitative*, but only *qualitative*, because vital substances are *indefinite*, in composition; while chemical substances are formed by unvarying combinations of quantity, in so much acid to so much base always forming the same salt; in so many atoms of one substance always uniting with so many of another to form a third. The substances on which vital actions specially depend are never precisely and accurately definite; they vary in different organisms, and at different ages of the same constitution; and as every variation in composition necessarily affects the property of each substance, it is impossible that such actions can be reduced to those exact quantitative formulæ, on which chemistry is founded. A salt is the same from the sea, the plant, or manufactured in the laboratory; but nerve tissue is never precisely the same; blood and milk differ from similar sources; constitution and temperament vary very considerably within certain limits, but widely enough to overthrow any correct inferences or settled deductions, as in cases of definite and permanent constitutions.

The chemical mode of fixing the exhausting powers of green crops from the ashes of straw and grain, is equally fallacious with the quality of food. The ashes of grain and straw exhibit a composition of silica, in the largest quantity, earthy phosphates, and carbonates, soluble salts, potash, and a small ratio of metallic oxides. These matters are supposed to be drawn from the soil, which is impoverished by the loss; and the restoration is made by the application of manure. This scientific mode of fixing the exhausting powers of plants is exposed to uncertainty, if plants extract from the soil, and transmit, as part of the composition, the matters that are found both in the soil and in the plants; or, if the substances are not formed by the process of vegetation, from matters wholly different. It is certain that substances are found in the soil, which do not appear in the plants; and that the plants contain matters, of which no vestige can be found in the soil. These discoveries would seem to show that other agencies, than direct transmission, are at work in producing the substances found in plants. The violent action of fire may wholly change the matters, and alter the constitution. Mineral substances may pass the fire unchanged; but soluble matters may be altered, wholly banished, or altogether reproduced. The quality of different soils, the matured condition of the plants, and the season, will combine in producing various results in the ashes having been already found in the experiments, even in the mineral substances, which would be supposed the least liable to change. Hence arises the caution necessary in receiving the mode now formed by chemistry, in fixing the exhausting quality of plants.

The labours of late years have been wholly barren in any practical results, being chemical lectures instead of agricultural lectures that are founded upon the enlightened practice of the art; and which must be deduced from a long and intimate acquaintance with the practice of the details. Plausible and brilliant, as many of the theories have been, they are all at fault when put to practice. A very general acceptance of them has been gained by reason of the simplicity which solved very abstruse problems, and the eagerness of the human mind to have explanations is readily captivated by any logical plausibility.

Chemistry itself is in too imperfect a condition to give clear and satisfactory answers to its own questions on the subject of agriculture—a fact acknowledged by its warmest advocates; and even supposing it to be perfect, the science must ever be incompetent to solve the problems of physiology from examining the results, but not reaching the means and modes of construction. The one never can explain the other. To know the component parts of a turnip and potato, gives no intelligence in what way to increase the produce, or how to use the articles in a better application. There is no agricultural light in the light of chemistry: no connection exists, except in the single point of manures; and in that case, the laboratory of the field differs most widely from the laboratory of the closet; and the distance that intervenes, prevents any effulgence from the latter reflecting a lustre, dim or bright, on the former, and almost wholly destroys any connection. The chasm between the two processes is deep and wide; and all attempts to make the passage have foundered midway, being wholly lost among the new states and appearances of materials, arising from the fresh and unexpected combinations that are presented to the view and examination. The very important truth is always overlooked or concealed, that to teach any science simply by itself in its own individual and unconnected state, is a comparatively easy process; but to connect it with another that is either allied or remote, subjected to other laws, and regulated by a different economy, becomes a matter of the most serious difficulty, which has hitherto baffled all attempts, and may ever remain insurmountaale. The great want that has attended most persons, even the most learned in other sciences, who have tried the application, consists in a total ignorance of agriculture itself; and the bare idea of connecting two sciences, or any objects whatever, in order to produce from their union a beneficial result or application to other purposes, must suppose a thorough and most intimate knowledge of the nature and properties of both objects to be previously possessed by the persons who pretend to effect the connection; and when these essential qualifications, or one of them, are wholly wanting, no surprise need be excited that universal failures have happened from the presumption which attends, and the conceit that directs, the performances.

And these failures will happen, without disparagement to the professor of any accessory science; for an ignorance of agriculture must inevitably lead to such results; and without that most essential qualification, the most profound learning that can be attained in other branches of natural science will not qualify any scientific man for such purposes of interpretation; and accordingly when he leaves the beaten track of his own department, and essays his strength and skill in attempting to elucidate the various constituent relations and possible applications of Nature's works, he finds himself roaming without a guide or beacon in a field of unbounded extent, where unknown and untrodden paths bewilder and perplex the road, and from which the veil that Nature has thrown over many of her works may never be withdrawn; and the full explanation of which is probably very justly and for ever placed beyond the reach of man. It is evident that the man of true science is the person who is engaged in the practice of an art, if the mind is liberalized, and the ideas enlarged by education; for he enjoys the daily advantages of observation, reflection, and experience, before his eyes, and the best opportunities of proving his own ideas, and of judging the probable success under the circumstances of application. Much of our knowledge is not to be applied to any purposes of life, owing to the influence of the agencies to which the action must be exposed. A very great and general mistake of scientific men, who have tried to reduce into agricultural practice the speculations and deductions of analytical research, consists in publishing the results of trials made under circumstances wholly removed from the situation of common application; assumptions have been used for observations, and the like results have been fancied and expected to attend all similar experiments. No practical analogy exists between common farming and the processes of the garden; nor any comparison with trials made in pots and vases placed in a room or greenhouse: all such essays, in order to be decisive and satisfactory, must be performed on similar and tangible grounds, in order to remove a very weighty and insuperable objection, and be recommended for easy and general adoption. Experiments are generally made on too favourable grounds; and predictions require a very cautious promulgation, being so very liable to numerous and mortifying falsifications. Future practice has, in many cases, disallowed both the experiments and results, and has rendered caution to be most necessary in the drawing of inferences and deductions. Experiment is seldom wrong, if properly made and used. Deception arises in forcing results to comply with our wishes; and in supposing that different circumstances will afford the same conclusions, and that different minds will view objects in the same light. Nothing should receive assent without positive conviction, where reason and experience can be applied to decide; and our judgment must not be allowed to mislead ourselves and others, by expecting and promising results that cannot be obtained, and which are refused by Nature in the varied circumstances from which the general results must be deduced. Crude conceptions and exaggerated statements have usurped the place of sound reasoning, and of the moderate expectations enjoined by providence and experience; and the consequent disappointments have thrown discredit on many attempts of a similar nature and object. But some little judgment and reflection will speedily set the matter in a right view, and point out the proper mode of proceeding.

Chemists expect that their art will effect in agriculture the same results as in medicine, where the inert ligneous matter, formerly so hurtful to the living organs, by its decomposition, has been separated in vegetable products, and the active principle has been presented in a pure crystalline form. But the circumstances are wholly different: no living body will suffer without harm the contact of decaying matter; but the earth is a dead receptacle, and can sustain no injury from that process. On the contrary, the inert ligneous matter affords, by its decomposition, the material or body on which the refined matter must act in the soil. A medicine supplies no food to the body, but modifies the action of the functions of the organs; and food must be provided in order to develop its effects. The most concentrated and powerful manure would produce no effect on pure earths or oxides; nor could medicine exert any influence on the original constituents of an animated body, without the living mechanism of muscular fibre and functional organs. The different and ever varying circumstances of application have permitted little or no progress in these ways, and have created mutual distrust between the philosopher and practitioner; the former looking on the cultivator as a most ignorant and incurably prejudiced being; and the latter regarding the former as a visionary speculator, unable to reduce any of his theories to practice. But the abstract philosopher may not stop, in his investigations of the mysteries of Nature, to enquire and determine if his speculations and deductions be applicable to any operation of practice, but proceed, wholly regardless of such a purpose, and leave the hints and suggestions of his labours to be adopted and used, as the different employment of the arts may direct.

Scientific men have, themselves, created and continued the aversion and distrust with which their labours are regarded by practical experience. This error arises from a total ignorance of agriculture having the confidence to publish experiments, results, and theories, that are wholly opposite to natural processes, and, from continuing the fallacies long after the means are known to effect the complete contradiction. The greatest abilities and the very best intentions are in this way expended in a most fruitless employment; and much more harm than good is done by the writing of conceit and ignorance.

The philosopher, who sails in the ship of science, forgets that the disciples cannot embark without a boat; and that this essential provision being wanting, no passage can be made from the sunken paths of practical experience into the lofty contemplations of natural research. No plank is laid to conduct the footsteps over the intervening gulf; and no helm or compass is placed to guide the wandering voyager into the haven of enjoyment. But though these abstract speculations have not afforded, either from physical or scientific theory, any assistance to the operations suggested by external objects and impressions, yet perseverance may probably lead to some valuable discovery, as has already happened in similar pursuits, and make an ample recompence for many aggravated misgivings. Such subjects, even if they never produce any result that is applicable to public utility, are nevertheless in themselves most worthy the attention and study of rational beings; they enlarge the circle of knowledge, ennoble our sentiments, refine and exalt our ideas, and, by directing the mind to lofty contemplations, annihilate the delusion of the senses. On these subjects, it may be presumptuous to be sanguine, and unphilosophical to despair.

J. D.

LARD VERSUS BUTTER.

BY ALEXANDER FORSYTH.

Biography differs from history in this, that the items of biography are made up during the life-time of the party, whereas in history they relate to the fate or fortunes of the departed. Now it is quite after this fashion with butter from the cow, and pig's butter.

The cow may look over the hedge and see living boys actually eating her butter; but it is far otherwise with the pig and her butter (lard), for that article of luxury is a legacy left to mankind by the long-headed porker, whose life of ease and gluttony was past and gone before his lard had come to table in the form of butter. I may as well state here, that the word "butter" is not by any means confined to the one article of butter made from milk: the article "cocoa-nut butter" is an example of a very important article of commerce, and is as like lard in appearance as can be.

Of all the articles used to adulterate milk, butter-lard is perhaps the least reprehensible; but let no one imagine for a moment that I wish to encourage the dishonest practice of adulteration of any article, still less in this case of an article of such importance to the welfare of the whole community as butter: on the contrary, I wish to point out to poor men the importance and economy of an article equal to the best butter, when properly used, and for some purposes actually preferable to butter, and that for about half the price.

But before I go any farther, I am sorry to be compelled to state, that whilst butter is adulterated with lard, lard also is adulterated, frequently with gummy or farinaceous substances—so much so, that in samples which I have tried, in a test tube, there was 20 per cent. of foreign matter.

When the Devonshire housewife finds that her fresh butter sells at 1s. 6d. per lb., and her hog's lard at 8d., she is tempted to lard the bottom of the tin milk-pan before the new milk is sieved in, and in this way during the process of scalding the milk, after the Devonshire fashion of making butter, the dead pig's lard is raised by *degrees* to the dignity of living cow's butter, for as the temperature rises, the lard melts and rises along with the cream; the clotted cream is then turned a little in a shallow tub with the hand, and the result is fresh butter frequently worth 1s. 6d. per lb., making the net gain upon the lard so sold 10d., or even 1s. per lb.; or in commercial figures—lard at 60s. per cwt., sold as butter at 168s., with a margin for profit of 108s. per cwt.

When cheese is made from new milk (as it ought to be), there is a portion of the fatty matter left in the whey; and when this is churned, there is manufactured the basest article that bears the name of butter. This whey-butter abounds in the northern counties where the best cheese is made, and its marbled appearance to the eye bespeaks its tainted character, and tells clearly of its contact with the decomposing agent, viz., the rennet that clotted the casein curd, and liberated the whey.

To such parties as are in the habit of buying and eating whey butter (and their name is legion), it will be no small boon to get beautifully-refined American lard at half the price of their bad butter.

The colliers in the northern counties seem to have been the first in this movement of using lard with their bread instead of butter; not, however, by spreading it on like bread-and-butter, but by having the lard baked with the bread.

Corn of itself contains very little fatty matter, still it does contain a little, and to that little beginning of fatness must be traced the store of greasy matter found in animals whose principal food has been meal or corn-flour. To increase the value of bread as an article of food it has to be greased or buttered with fat of some kind, and whether the confection be in the form of wheaten-bread cut in slices and coated with fresh butter, or in the form of oatmeal-porridge or "bannocks of barley-meal" eaten with lard or dripping, the substantial virtues, viz., the feeding properties, are the same. The collier finds the bread-and-butter an awkward article under ground; and it is for this reason that he has his bread baked with lard, and in this dry state his grease is not affected by the atmosphere of the pit. Taken by itself this example would go for very little; but when it is coupled with the fact that the very highest order of pastry is made with lard, and when the highly-ornamented leafy-crust of an apple tart is served up at a nobleman's table apart from the confectioner's skill in ornamentation, the principal ingredients of the nobleman's paste and the collier's bread are flour and lard.

The art of cooking pig's butter is unfortunately very little understood among the class of men most interested in it, and the disgusting samples of lard frequently to be seen in shops forbids a fair trial. Refined lard should be firm as the finest butter and white as the snow, and may be seasoned with salt or other seasoning, but of itself should taste sweet like new milk. If I have shown the poor man how to fatten his homely fare with a pure butter at half the price he is in the habit of paying for bad butter, I shall rest satisfied that I have not taken this trouble in vain. But it is scarcely to be credited that in England the manufacture of butter is so various. One party churns all the new milk, and gets good butter and oceans of butter-milk to sell about the streets; another skims off the cream, and sours it before churning; whilst a third party scalds the milk, and never churns at all, and yet gets butter. These, with the fellow (for he deserves no better name) that churns the whey, are all butter-makers; and it may truly be said that at least half the butter made in this kingdom is of very inferior quality, although, generally speaking, made from good milk; and it is only when this state of things is taken into consideration, that we see the importance of getting an article always the same in quality and at less than half the price of butter.

Manchester, Oct. 22.

THE DUKE OF RICHMOND AS A FARMER.

Although the object of this notice will be treated more as an agriculturist than a soldier or a senator, we do not think we can pass over his birth, parentage, and education without devoting a few lines to them. Charles Gordon Lennox, fifth Duke of Richmond, was born on the 3rd of August, 1791.

His Grace is descended from a son of Madame de Querouelle, by Charles II. The merry monarch not only created the Lady Louisa Querouelle Duchess of Portsmouth, Countess of Farnham, and Baroness of Petersfield, but gave the titles of Duke of Richmond and Lennox, Earl of March and Darnley, and Baron Settrington to her son. At nine years of age this little scion of royalty was installed as a Knight Companion of the Garter, and made Master of the Horse; it ought to have been a rocking-horse. Nor was Louis XIV. less liberal, for he granted the territory of Aubigny, in France, to the Duchess of Portsmouth for life, and after her decease, the name, title, dignity, and land to descend to her son, the Duke of Richmond, and the heirs male to his body, as Duke of Aubigny. This fortunate youth served in Flanders during the reign of William III., as his aide-de-camp, and was also a Lord of the Bedchamber to George I. The second Duke shared some of his father's good fortune; he was elected M.P. for the city of Chichester, and for the borough of Newport, and strange to say, between the two seats he did not fall to the ground, for he lived to be a Knight of the Bath, and of the Garter, a Lord of the Bedchamber, and aide-de-camp to George I., which post he held under George II., and at the coronation of the latter monarch acted as High Constable of England for the day. On the death of the Duchess of Portsmouth, the dukedom of Aubigny devolved upon his Grace, who was shortly afterwards appointed Master of the Horse to the King, and one of the most honourable Privy Council. Not satisfied with these civil dignities, the Duke was speedily promoted from the rank of Brigadier-General to that of Lieut.-General. During this period the Duke was present at the battle of Dettingen, and shortly afterwards under the orders of the Duke of Cumberland, assisted at the reduction of Carlisle. His Grace was subsequently made High Steward of Chichester, and admitted to the degree of Doctor of Physic at Cambridge; nor did his good fortune end here, for he received the Colonelcy of the Royal Horse Guards (Blues) the very year of his death. The third Duke, who succeeded to his father's titles and estates at the early age of fifteen, also chose the military profession, and before he had attained his twenty-seventh year had risen to the rank of Major-General in the Army; and at the accession of George III received, what in those days seemed to be the hereditary right of the family, the situation of Lord of the Bedchamber. His Grace was afterwards appointed Lord Lieutenant of the County of Sussex, and eventually held the situations of Secretary of State, and Master-General of the Ordnance. So extensive and extravagant were his Grace's plans in the latter department, respecting the fortifications of our sea-girt isle, that the economists of the House of Commons took the alarm, and with the casting vote of the Speaker carried their point. The fourth Duke following the steps of his ancestors, selected the Army for his profession, and finally attained the rank of Lieutenant-General, with the Colonelcy of the 35th Regiment of the Line. His duel, when Colonel Lennox, with the Duke of York, is too well known to require further notice, except to say, that nothing could exceed the coolness evinced on both sides. Previous to his elevation to the peerage, his Grace represented the county of Sussex for seven successive parliaments, and two years after it, was appointed Lord Lieutenant of Ireland, a situation he held for six years. In 1818 he was made Governor-General of the British Settlements in North America, where he died August 1819, from hydrophobia. The question has so often been mooted, as to the cause of his death, and so many erroneous opinions have been given that we, who were in Canada at the time, can enlighten the reader as to the real state of the case. His Grace had left Quebec, to proceed to the Upper Provinces on a tour of inspection, and had stopped for a few days at a small government fort between the former place and Montreal. It was here that in attempting to separate his own spaniel and a tame chained-up fox, who were fighting, that he received the fatal bite. It was a mere scratch, and treated as such, but an acute observer remarked at the time, that the fox was in such a state of passion, that the saliva dropped from his mouth, and it is generally believed that the wound was inflicted by this animal, for the dog, who was afterwards brought to England, never showed any symptoms of madness. We will not dwell upon the sufferings, this noble—in every sense of the word nobleman—underwent, when attempting to struggle against the dreadful calamity; suffice it to say, he bore them with patient resignation, and died as he had lived, respected by all who had the happiness to know him. Upon his decease, the subject of our memoir, Charles, the fifth of that name, succeeded to the title and estates, and assumed the additional surname of Gordon. On the death of his maternal uncle George, fifth and last Duke of Gordon, the property in Scotland descended by the will of his grandfather, the fourth Duke of Gordon, to the present proprietor of it.

At an early age the youthful Lennox went to Westminster, previous to which he was at Mrs. Horn's school, at Chiswick, for a few months, and became a boarder at "Glover's," in Great Dean's Yard. As a boy, he was quick and intelligent, attentive to his studies, and very popular with his tutor, the late respected Dr. Dodd. With youths of his own age he was equally liked, being kind, open-hearted, good tempered, and generous; but perhaps his greatest triumph was the devotion with which the younger boys looked up to him. "*Old* Lennox," as he was called in school phraseology, having two brothers, middle and "young" under him. In him the oppressed ever found a ready champion, and whenever a bully was reported to him as having tyrannised over some youngster, a sound thrashing was the inevitable result. At all manly games, cricket, fives, rowing, foot-ball, quoits, running and leaping, "Old Lennox" was second to none. His easy and affable manner kept him free from quarrels with his school-fellows, but whenever any attempt was made to take advantage of his good-nature, no one wss more ready to defend himself. He was in fine, a noble, generous, high-spirited boy, and one that it was impossible to know without feeling the deepest interest in. The future heir to the Dukedom took all his removes with credit to himself, and was often held out as a pattern of attention by the head and under masters Cary afterwards Bishop of St. Asaph, and Dr. Page. Among his cotemporaries were two with whom in after-life he was politically connected, Lord John Russell and Sir James Graham.

There was one, however, whose friendship commenced with him at Westminster, and was only severed by death. We allude to young Lifford, a noble, open-hearted, generous creature, who was ever looked upon as the son of the late Duke of York. "Old Lennox" and Lifford were inseparables, regular "cronies," the Damon and Pythias of the school. At an early age the latter got a commission in the 52nd Light Infantry, was severely wounded at Redinha, and died shortly after. With his latest breath, poor Lifford urged his old school-fellow, then Earl of March, and serving on the staff of Wellington, to deliver into the hands of the Duke of York his trusty sword. Need we say that this injunction was implicitly followed, for, upon his returning to England Lord March gave the dying gift to the reputed father of his lamented comrade. Poor Lifford, of him might the survivor say, in the lines of Halleck:

> " Green be the turf above thee,
> Friend of my 'youthful days,'
> None knew thee but to love thee,
> Nor named thee but to praise."

Before we take leave of Westminster, we must not omit to mention, that in a memorable contest between the Town boys and King's scholars, arising from an old custom, now happily obsolete, that of slucing one another, and which always led to a general fight, the hero of this memoir was appointed commander-in-chief on the side of the Town boys, and led on his forces with a bravery and judgment that quite won the hearts of his young followers. The affray alluded to was so serious, that the authorities wisely put an end to this annual battle.

Shortly after leaving Westminster, the Earl of March entered the army, then in his eighteenth year, as an ensign in the 8th Garrison Battalion, and was appointed extra aide-de-camp to his father, at that period Lord-Lieutenant of Ireland; but he sighed for an active life, and having "longed to follow to the field some warlike lord," quitted the gaieties of Dublin to join the army in the Peninsula, as aide-de-camp to his father's friend, the Iron Duke. Here he remained until 1814, and was present at all the actions that took place during that eventful period. In January of the above year Lord March left the staff to do duty with the gallant 52nd, Lifford's old corps, to which regiment he had been appointed as a captain during the preceding year. Within a month he was severely wounded at Orthes, while leading his company to attack the left of the height on which the right of the enemy stood.

And here we must digress, for the purpose of recording an anecdote of the late Duke of Wellington, whose maligners falsely accused him of having been devoid of feeling. Our readers are probably aware that, except upon one occasion, the great warrior escaped without a wound. At the above mentioned action, however, his Grace received a severe contusion upon his hip-bone from a spent ball, which prevented his directing in person the last movements of his army upon that day; but he did not leave the field, until Soult had sounded a retreat. Upon reaching his quarters, the present Dr. Hair, at that time a staff surgeon, was sent for, and Wellington's first inquiry was after the Earl of March, who had been present with him at the battles of Busaco, Fuentes D'Onor, Salamanca, Vittoria, the Pyrenees, storming of Cuidad Rodrigo, Badajoz, and St. Sebastian, and the action at Vera. Dr. Hair in reply stated, that although the young nobleman's wound was severe, there was still a gleam of hope, as he had witnessed similar cases where the sufferers had recovered. The Duke's next anxiety was to be sufficiently recovered to resume in person the pursuit of the enemy on the following morning, and expressed a fear that the stiffness occasioned by the contusion would for a time prevent him mounting his horse. A simple, yet efficacious remedy was applied, and at an early hour in the morning after the battle, his Grace, supporting himself by two sticks, crossed the street from his own quarters to those of his former aide-de-camp, and hobbled into the room where Lord March still remained in a most precarious state. Dr. Hair, who, overcome with fatigue and anxiety, was extended upon a mattress, started up at the entrance of the Duke, and made a sign that the wounded officer was asleep. For a few seconds Wellington leant against the mantelpiece, overwhelmed with the most poignant grief. Suddenly Lord March awoke, and recognizing his chief, faintly expressed a hope that he had been successful on the previous day; the reply in the affirmative was conveyed in downright plain English—"I've given them a d—— good licking; and I shall follow it up." The exhausted youth then turned to doze again; and as the duke left the room tears trickled down the cheeks of the warrior when he took leave for the last time, as he feared, of his *protegee*—the son of one of his dearest and best friends.

Another anecdote connected with the Duke of Richmond occurs to us. He was sent upon one occasion by Wellington with an order to the Royal Fusiliers, who were suffering greatly from the enemy's fire. Just as he reached this distinguished regiment, he observed that some of our guns had ceased firing. Passing the artillery officer, he mentioned the object of his mission, and suggested that if he would only continue to pour some grape into the enemy's cavalry, the Fusiliers would get rid of a formidable enemy. "Enemy's cavalry!" said the artillery officer: "they belong to the German Legion." "You are wrong," responded the young aide-de-camp. "I am confident they are French. Remember, I have no orders for you to fire; but if you ceased under the impression that they were friends, not foes, I advise you again to blaze away!" In a second the hint was taken, and the firing renewed when, much to the satisfaction of the artillery, the Fusiliers, and Lord March, the French—for French they were—retired to the rear.

In "Hart's Army List"—one of the most complete works of the sort that ever emanated from the press—we find the duke's services reported as follows:—

"On the 24th July, 1810, the present Duke of Richmond, then Earl of March, joined the Duke of Wellington as Aide-de-camp and assistant military secretary, and remained with him until the year 1814. He was present with his chief at the battles of Busaco and Fuentes D'Onor, the storming of Cuidad Rodrigo and Badajoz, battles of Salamanca, Vittoria, and Pyrenees, first storming of St. Sebastian, action at Vera. At the battle of Orthes, Lord March was, as we have previously stated, in command of a company of the gallant 52nd. At Quartre Bras and Waterloo he was on the staff of the Prince of Orange, late King of Holland."

His Grace's political life commenced in 1812, when he was returned to parliament as member for the city of Chichester, which he represented until 1819, when he took his seat in the House of Lords. Upon the dissolution of the Wellington administration, in 1830, he accepted the office of Post Master General, with a seat in the cabinet, in the government of the late Earl Grey. In 1834 the Duke of Richmond, Earl of Ripon, Sir James Graham, and Mr. Stanley (now Earl of Derby) seceded from office; the cause of their resignation was a division of opinion with the rest of the cabinet as to the propriety of confiscating part of the property of the Irish church to other than Protestant ecclesiastical purposes. As a supporter of Church and State, the Duke felt he could no longer act with a party who, according to his views, were undermining the Protestant Church. As a friend to the agriculturist, and an uncompromising enemy to the Anti-corn Law League, his Grace stood pre-eminently forward.

As a speaker in the House of Lords, the Duke is clear, forcible, and fluent. He is ever master of the subject he discusses; and in the absence of brilliant imagery, fanciful metaphor, or flowery rhetoric, brings such a fund of good common sense to his aid, that he never fails to command the attention of his hearers. In reply he is quick, and generally comes off victorious when a brother legislator tries a lance with him. At public meetings his Grace is an excellent chairman. There is a *bonhommie* about him—an affable manner; dignified, yet not proud; courteous, yet not familar—which wins all hearts; and we know no one, at an agricultural or cattle-show meeting, who carries those prides of their country, the British farmer and Yeoman, so much with them as the Duke of Richmond. Whether he appears as a successful or unsuccessful candidate, there is still the same joyousness of manner, the same good-humoured smile, the same equanimity of temper. In private life the duke is exemplary, and in society has a fund of anecdote of the days of his services under Wellington. He possesses the peculiar talent of suiting his conversation to his hearers—the *reverend divine*, the military man, the politician, the county magistrate, the farmer, the man of letters, the sportsman, will all find pleasure in the conversation of the duke. As the lord lieutenant, the magistrate and guardian of the poor, the Duke is impartial, kind-hearted, and considerate; and whatever defects may exist in some of the clauses of the present poor law, few that see the West Hampsett Union, near Goodwood, could find fault with the system there carried on. As a sportsman, the Duke, when Earl of March, rode well to hounds, and was, as he is to the present day, an excellent shot. He also carried on his love for cricket for many years; unfortunately the "ball" he received at Orthes, and one which the most expert member of "Lord's" would have found quite impossible to stop, has prevented his Grace taking up his bat for many years; although the manly game is still strongly patronized by the noble owner of the broad lands of Goodwood.

With a view of aiding the cause of the army, by not only setting a brilliant example in joining the ranks of the malitia, but of recruiting the line from his own regiment, the Duke has devoted his whole time and energies to the corps under his command. So great is his Grace's sense of duty, that he never, except upon urgent business, absents himself from head quarters; the result has been that the Royal Sussex Light Infantry stand second to none, and have done the State no little service by the quantity and quality of recruits they have furnished the army. It was a truly-gratifying scene to witness the gallant Colonel, who has bled for his country, riding at the head of a band of volunteers, as they secured their places in the railway carriage to proceed to their destination at Chatham; and happy, truly happy, must his Grace have been at the steady conduct, the martial appearance, the soldier-like march of these brave fellows, as they took leave of their comrades, with but one feeling in their breast—that of serving the Queen in any quarter of the globe. We ought not here to withhold the meed of praise due to the Lieut.-Colonel, Lord Arthur Lennox, who in the field cannot be excelled; Major the Hon. H. Gage; and Captain Fuller, late of the gallant 52nd, adjutant, for their zealous endeavours to promote the discipline and honour of the corps.

Before we refer to the Duke of Richmond as an agriculturist, or allude to his farms, we will give the reader a slight description of the territorial property belonging to his Grace in the west of Sussex. The domain of the Duke includes the three contiguous estates of Goodwood, originally called Godinwood; Halnaker, or, according to ancient phraseology, Halnecke and Westhampnett. The former was purchased by the first duke, the son of the "Merry Monarch," from the family of Compton, about the year 1720. Halnaker did not come into the family until 1765, when it was added by the third Duke of Richmond to the other entailed estates. Westhampnett, which comprises upwards of eighteen hundred acres, was also purchased by the last-mentioned nobleman. Halnaker House, which was built in the time of Henry the Eighth, is now a perfect ruin, and is the only specimen in that part of the country of the castellated style peculiar to the age of the Tudors. In one of those beautiful, yet ephemeral works of the day—the Annuals—we find "A Legend of Halnecke," by Lord Wm. Lennox, which contains a very graphic account of the visit of the unfortunate Edward the Sixth to this place in 1551. The park contains some magnificent timber, and a splendid avenue of Spanish chestnut trees.

The Manor House of Westhampnett, formerly the property of Sir Hutchins Williams, Bart., is now converted to the Union-workhouse; and let those who cavil at the new Poor-law system only visit this establishment, and they will find that every comfort and attention that can be paid to the spiritual and bodily wants of their less fortunate brethren, are here dispensed with a most liberal hand. See the aged, happy and content; the children cheerful, well fed, and cleanly attired; test their knowledge in the "one thing that is needful;" and it will be found that many of these, poor in the eyes of the world, are rich in treasures far above earthly value. Return we to Goodwood, which in the Burrell MSS., is thus described:—"Rot. Par., 26th of Elizabeth. Godinwood Manor, with its appendages, and two houses, four gardens, two orchards, two hundred acres of park land, ten of arable, five hundred of pasture, and three hundred of wood." The original mansion, a gothic structure, of which we believe no print or painting is in existence, was replaced by an edifice erected under the direction of Sir William Chambers, and which now forms part of the present building. In 1800, the third Duke of Richmond, who was a great patron of the arts, and who had expended a large sum upon the improvement of the estate, commenced those additions and alterations which have produced the present noble domain. The house consists of a principal front, with a colonnade; a portico of six Doric pillars supports another of an equal number of Ionic of Portland stone, extending nearly one hundred and seventy feet, and terminated by two towers with hemispherical roofs; the wings, each presenting a front of one hundred and six feet, are also terminated by similar towers. With the exception of the front, which formed part of the building erected by Sir William Chambers, the whole of the new edifice is built with square flints, collected in the neighbouring downs, and which possess an advantage over Portland stone—namely, that the longer they are exposed to the weather the whiter and harder they become. Near the principal entrance are some fine specimens of the cork tree, famed for their size and beauty. Of the interior of the house we shall say little, except that a visit to it will amply repay the sight-seer, as it contains some fine pictures of many of the most celebrated artists—Rubens, Vandyke, Sir Peter Lely, Guido, Titian, Godfrey Kneller, Salvator Rosa, Teniers, Rembrant, Tintoretto, Ostade, Wovermans, Canaletti, Hogarth, Reynolds, Gainsborough, and Lawrence. A selection of the above were lent by the Duke for the Exhibition at Manchester, and were much extolled by the lovers of fine arts.

In the park and ornamental plantations that surround the house are to be found some splendid timber, consisting of beech (which flourishes greatly in this soil), cedar, American oak, tulip trees, Turkey oak, cyprus, plane, and chesnut. The pleasure-grounds, orangery, and conservatories are planned with great taste, and the kitchen-garden is well-stocked. The whole reflect great credit to Mr. Cameron, the Paxton of Goodwood. At the extremity of the park is the Tennis court, which combines pleasure and instruction, for it is not only used for the favourite amusement of *Le jeu de paume*, but is annually the meeting-place of the West Sussex Agricultural Society, the object of which is to encourage industry, and to reward those sons of the soil whose general good conduct entitles them to the "golden opinions" of their employers. The dog-kennel and stables are the most complete establishments of their kind in England; the former is erected on a rising ground, about a quarter of a mile from the house. It is about one hundred and fifty feet in length; the height of the centre is twenty-eight feet; and of the wings eighteen, measured from the crown of the arches on which it is built. The building consists of four kennels and two feeding-rooms, in which hot and cold air are introduced by stove pipes and ventilators. It is now more than forty years since a pack of hounds have been kept at Goodwood. Sincerely do we hope that the time will arrive when the kennel will be restored to its original purpose; for although it is now hunted by that truly kind-hearted and popular sportsman Colonel Wyndham, and the county of Sussex is too full of woods and downs to furnish first-rate sport, it would be a most valuable acquisition to this magnificent property to have a pack of hounds under the auspices of the Duke of Richmond and his son the Earl of March. Foxes are plentiful, and if the coverts were well rattled would furnish at least an excellent gallop.

We have already alluded to the Duke as a soldier, a magistrate, and a senator, and now propose to look at him as an agriculturist. His Grace is president of the Smithfield Club, and until his duty called him to his regiment, was constant in his attendance at its annual meetings. It was to the Smithfield Club, and the exertions of the then president, the Earl Spencer, and the Duke of Richmond, that the Royal Agricultural Society owes its origin; for when the idea was suggested some twenty years ago by the lamented earl, it was the cheer with which the British farmers received the proposition that encouraged the noble lords to proceed in their undertaking. Like many other institutions, both the Smithfield Club and the Royal Agricultural Society have had much opposition to contend with.

The Goodwood estate consists of 9,602 acres arable, exclusive of down pasture, which is about 4,000 more. The Duke farms 790 acres arable, and about 1,500 park and down pasture. The flock numbers 1,000 breeding ewes, and 1,100 others, composed of ewes, tegs, wethers, and rams: all the above are Southdown. His Grace has 120 head of cattle; 20 of which are Alderney cows, the remainder West Highland bullocks and Devons for fattening.

The farm is used in the four-shift system.

First year—Wheat.
Second—Turnips, mangold, and carrots.
Third—Barley and oats.
Fourth—Clover.

From 30 to 40 acres of mangold are grown annually, and about 5 acres of carrots, rape, and trifolium for the sheep.

To show the methodical manner on which the farm is conducted, we proceed to lay before our readers four returns of live stock on the Duke's Goodwood farm, as made out by the bailiff on the first of the month:—

HORSES' ACCOUNT.

1858. No. 1.
Feb. 1. STOCK ON CHARGE.

Stallion	1
Cart	20
Nags	1
Ponies	2
Colts	1
Fillies	—
Foal	1
Total	26
Bought	—
Births	—

BEASTS' ACCOUNT.

1858. No. 2.
Feb. 1. STOCK ON CHARGE.

Bull	1
Cows in milk	9
Ditto in calf	11
Calves	4
Stores	56
Fatting	40
Total	121
Bought	—
Births	—

SHEEP ACCOUNT.

1858. No. 3.
Feb. 1. STOCK ON CHARGE.

Stock ewes	1,018
Draft ditto	7
Fatting ditto	5
Stock wethers	214
Fat ditto	113
Tegs { Ewes	497
Wethers	170
Lambs	—
Old rams	31
Teg ditto	51
Show stock	11
Total	2,117
Bought	—
Births	—

PIGS' ACCOUNT.

1858. No. 4.
Feb. 1. STOCK ON CHARGE.

Boars	2
Sows	9
Sucklings	60
Stores	29
Total	100
Bought	—
Births	—

The Duke's agent at Goodwood, Mr. Arras, is a Scotchman by birth, and possesses every requisite for the important situation he holds. Upright in his conduct, obliging to all, attentive to the interests of his employer, undeviating in the path of rectitude, charitable and considerate to his less fortunate brethren, hospitable to his friends and associates, he is respected by peer and peasant. Under his able and judicious management the Goodwood estate is second to none in this country.

Since writing the above, death has deprived the Duke of Mr. Arras's services. His successor is Mr. Wilson from Frogmore.

Mr. Wilson, to use an old phrase, is "the right man in the right place;" a more active, honourable, zealous, attentive, and kindhearted man than Mr. Wilson does not exist; and the character he nobly won at the Royal Farm at Frogmore, has been fully kept up on the princely estates of Goodwood.

GORDON CASTLE.

Having already referred to the broad acres in Sussex, we now proceed to give a brief notice of his Grace's estate in Scotland. The cultivated land which he possesses near Gordon Castle amounts to about fifty-five thousand imperial acres, four hundred of which are arable, and five hundred (the park) pasture. The flock of sheep consists of twelve hundred, five hundred being breeding-ewes; one-half are Southdown, the other Leicester. The Duke has twenty shorthorn cows, forty West Highland cattle, besides young stock. There is a public sale of young and old ewes and rams of both breeds, and of young bulls, every year. In the five-shift is grown—

1st year turnips,
2nd year barley or wheat,
3rd year seeds,
4th year ditto,
5th year wheat or oats.

A little mangel wurzel, or mangold, as it is called, is grown for the cows, but it does not succeed well, as the climate is too cold. The Duke has been extremely fortunate in his commissioner, Mr. Balmer, a gentleman who takes the deepest interest in the estate; and whose practical knowledge, industrious habits, honourable feelings, and kind-hearted conduct render him alike popular to the noble proprietor as to the most humble retainer on the property. There is an old maxim that "Whatever is worth doing at all, is worth doing well;" and the admirable manner in which the Gordon Castle estate is kept up, proves that the commissioner has heard of and fulfilled the adage.

On the banks of the Spey, near Fochabers, surrounded by the most beautiful plantations, stands Gordon Castle. The castle was originially built by George, second Earl of Huntley, and altered and enlarged in every succeeding age. It was almost rebuilt by the late Duke, in all the elegant magnificence of modern architecture. It extends in front to five hundred and sixty-eight feet from east to west; being, however, of different depth, the breaks make a variety of light and shade, which takes off the appearance of excess in uniformity. The body of the building is of four storeys; and in its southern front stands the tower, entire, of the original castle, by much ingenuity making a part of the modern mansion, and rising many feet above it. The wings are magnificent pavilions, connected by galleries of two lower storeys; and beyond the pavilions buildings are extended equally to either hand, of one floor and an attic. The whole of this vast edifice, externally, is of white freestone, cut in the most elegant manner, and finished all round by a rich cornice and a handsome battlement.

The first floor contains the dining-room, drawing-room, breakfast-room, and several other handsome apartments. The sideboard is within the recess of the dining-room, separated by lofty Corinthian columns of scagliola, in imitation of verd antique marble. In this room are copies, by Angelica Kauffman, of Venus and Adonis, and of Danæ, by Titian; of Abraham and Hagar, of Joseph and Potipher's wife, by Guercino; of Dido and St. Cecilia, by Dominichino, besides several portraits. In the drawing-room is a portrait of the late Duke of Gordon, by Raeburn; and of the Duchess, grandmother to the present noble proprietor, by Sir Joshua Reynolds. In the breakfast-room is a copy, by A. Kauffman, of the celebrated St. Peter and St. Paul, the masterpiece of Guido Rheni, esteemed the most valuable in the Lampiori Palace, at Bologna, and one of the best paintings in the world. Ten thousand sequins, it is said, have been offered for it.

The library contains several thousand volumes; among the most valuable is a folio manuscript of the vulgate bible, and two MSS missals, beautifully illuminated. There is also a MS of Bernard Gordon's *Lilium Medicinæ*, with the date 1319, and the names of the copiers at the end.

The hall is embellished by a copy of the Apollo Belvidere, and of the Venus de Medicis, cleverly executed of statuary marble, by Harwood. Here, also, by the same ingenious artist, are busts of Homer, Caracalla, M. Aurelius, Faustina, and a vestal. At the bottom of the great staircase are busts of Julius Cæsar, Cicero, and Seneca, all raised on pedestals of Sienna marble. With these last stands a bust of Cosmo the Third, Duke of Tuscany (connected with the Gordon family), on an elevated pedestal.

The most remarkable pictures at Gordon Castle are a full length of James the Sixth, by Mytens. At the time of the Revolution the mob had taken it out of Holyrood House, and were kicking it about the streets, when the chancellor, the Earl of Finlater, happening to pass by, redeemed it out of their hands. A portrait of James, Duke of Hamilton, beheaded in 1649, by Vandyke; a half-length of his brother, killed at the battle of Worcester, by the same artist. William, Duke of Hamilton, president of the revolution parliament, by Kneller; old Lord Banff, aged ninety.

On the highway between Fochabers and the Spey is the gate which leads to Gordon Castle, consisting of a lofty arch between two domes. It is embellished by a handsome battlement within the gate. The road winds about a mile through a green pasture, skirted with flowering shrubs and groups of tall spreading trees, till it is lost in an oval in front of the castle. There is, besides this, another approach from the east, sweeping for several miles through the varied scenery of the park, which is nearly twelve square miles, enlivened by different picturesque views of the country, with the river and the ocean.

The castle stands on a low flat, at some distance from the Moray Frith; the ground immediately rises towards the east, about twenty feet in height. A second flat of considerable extent succeeds, which terminates on the side of a considerable mountain. The wood, without the appearance of design, is disposed upon the plain in a variety of pleasing forms; and on the side of the mountain above it exhibits a boundless forest, affording coverts for vast numbers of red deer, and containing in its skirts an ample enclosure, stocked with fallow deer.

SALE OF EXMOOR PONIES AT BAMPTON FAIR.—Mr. Knight's ponies and Mr. R. Smith's Galloway colts were sold here. There were fifty ponies, of which the four-year-old horses reached an average of £15 10s. each, and the horse ponies of other ages £12 6s. each. Mr. Smith's Galloways, by a thorough-bred horse out of Exmoor mares, brought the excellent average of £22 10s. each. The prices were considered to be very good for rough ponies, be it remembered, that had eaten the wild grass that nothing else would eat. The whole amount realized was between seven and eight hundred pounds. Some of the picked ponies made thirty pounds each, and there were buyers and bidders from thirteen different counties.

ROYAL AGRICULTURAL SOCIETY OF ENGLAND.

A Monthly Council was held on Wednesday, the 3rd of November: present, His Grace the Duke of Marlborough, President, in the Chair; Lord Berners, Hon. Colonel Hood, Sir Charles Morgan, Bart., Sir Archibald Macdonald, Bart., Mr. Dyke Acland, Mr. Amos, Mr. Raymond Barker, Mr. Barnett, Mr. Bramston, M.P., Mr. Caldwell, Colonel Challoner, Mr. Exall, Mr. Brandreth Gibbs, Mr. Wren Hoskyns, Mr. Howard, Mr. Jonas, Mr. Milward, Mr. Pain, Mr. Shuttleworth, Professor Simonds, Mr. Thompson, Mr. Torr, Mr. George Turner, Professor Voelcker, and Mr. Wilson (of Stowlangtoft).

The Earl of Carnarvon, of High-Clere, Hampshire, was elected a Governor of the Society.

The following were elected members:—

Barker, Thomas, Brown's Yard, Woodhouse Lane, Leeds.
Bloxsidge, Samuel, Warwick.
Bonner, Henry C., East Rudham, Rougham, Norfolk.
Booth, W. H., Artington Manor, Newbury, Berkshire.
Bradstock, Thomas Skinner, Cobrey Park, Ross, Hereford.
Cobden, Richard, Midhurst, Sussex.
Coleman, John, Royal Agricultural College, Cirencester.
Collins, Francis, Aston Farm, Stone, Staffordshire.
Corrigan, A., Royal Dublin Society, Dublin.
Creese, William, Teddington, Tewkesbury.
Davis, John, Penlanowen, Aberystwith, Cardiganshire.
Dobson, Samuel, Cardiff, Glamorganshire.
Edmunds, Richard, Trunkwell House, Reading.
Ellison, Charles, Oldbury Lodge, Bridgenorth, Salop.
Glen, George, Puddington Hall, Chester.
Grisewood, Harman, Daylesford House, Chipping Norton, Oxon.
Grundy, John, The Dales, Stand, Manchester.
Halkett, Peter Alexander, Wyndham Club, St. James's.
Hemming, William, Moreton-in-Marsh, Gloucestershire.
Humphries, E., Pershore, Worcestershire.
Ivimy, John Hill, Hinnington, Shiffnal, Salop.
Leigh, William, jun., Woodchester Park, Stone House, Gloucestershire.
Lloyd, William Butler, Monkmoor, Shrewsbury.
Lyne, Charles, R.N , Newport, Monmouthshire.
Makgill, George, Winchcombe, Cheltenham.
Margary, Major, Chartham Park, East Grinstead, Sussex.
Marsh, William James, Loridge, Berkeley, Gloucestershire.
Martin, Edward, Nonsuch Park Farm, Ewell, Surrey.
Newton, Thomas, Royal Agricultural College, Cirencester.
Phillips, William, The Lodge, Reigate, Surrey.
Pope, Thomas, Harewood House, Bletchingley, Surrey.
Potter, T. B., Buile Hill, Manchester.
Powell, Thomas, jun., The Gaer, Newport, Monmouthshire.
Rowland, Edward, Claygate House, Esher, Surrey.
Smith, Hugh, 2, Porchester-square, Hyde Park.
Spark, William, Shilton House, Coventry.
Synge, Francis Hutchinson, Dysart, Co. of Clare, Ireland.
Waller, John, Pen Park, Bristol.
Wallis, Richard, Eastlands, Basingstoke, Hampshire.
Wilkinson, Joseph, Roundhay, Leeds.

Finances.—Mr. Raymond Barker, Chairman of the Finance Committee, presented the report on the accounts of the Society; from which it appeared that the current cash-balance in the hands of the bankers was £1,909. The Chairman also reported that a further investment had been made in the purchase of stock, by which the invested capital of the Society had been raised to £10,000 in the New Three per Cents. The recommendation of the Committee that the thanks of the Society should be conveyed to Messrs. Williams and Co., of Chester, for the accuracy and courtesy with which they had acted as the local bankers of the Society during the period of the Chester meeting, was adopted unanimously.

Journal.—Mr. Thompson, Chairman of the Journal Committee, laid before the Council the following report, which was unanimously adopted:—

Report of Journal Committee, Nov. 3, 1858.—1. On the 4th of May last this Committee reported to the Council, "That the present Editors of the Journal would undertake to carry on the work as at present for a few months, on being allowed to engage such paid assistant or assistants as they found necessary, and would report to the Council the result of the experiment." The Council thereupon decided, "That the present Editors be requested for the present to continue to edit the Journal, and that they be allowed to expend not exceeding £300 per annum in procuring assistance." The Committee have now to report that Mr. Acland and Mr. Hoskyns find that their engagements are such as to preclude their taking any large share of the editorial work, and it is recommended that Mr. Thompson be the sole editor, the business of the Journal Committee being transacted as heretofore. 2. A cheap reprint of Dr. Lang's prize essay on the Potato Disease, in the last Number of the Journal, is recommended.

On the motion of Lord Berners, seconded by Mr. Raymond Barker, the best thanks of the Council were voted to Mr. Dyke Acland and Mr. Wren Hoskyns for the valuable services they had rendered to the Society, as Vice-Chairman of the Journal Committee, in cooperating with Mr. Thompson in the editing of the Journal.

Agricultural Chemistry.—Mr. Wren Hoskyns, Chairman of the Chemical Committee, informed the Council that Prof. Voelcker has prepared a Report of the progress of work in his laboratory, which would be brought under the consideration of the Committee at its next meeting, and submitted to the notice of the Council. He took that opportunity of presenting to the Council, on the part of Prof. Voelcker, a little work on Agricultural Chemistry, by Mr. Sibson, the first assistant in his laboratory at Cirencester.

Certificates.—Three cases of alleged false certificates of entry at the Chester meeting were, on the motion of Colonel Challoner, referred respectively to the Stewards of Cattle and Implements, and to the Implement Committee, for their investigation and report.

Cheese Prizes.—The Steward and Judges of cheese at the Chester meeting favoured the Council with valuable suggestions and details connected with any future prizes for cheese that might be offered at the Society's country meetings. These communications, along with a letter from Mr. George Jones against the use of colouring matter in cheese, were referred to the General Warwick Committee.

Show-yard Services.—On the motion of Mr.

Milward, seconded by Sir Archibald Macdonald, the Council voted unanimously to Mr. David Pullen £20, and to Mr. Thomas Baldock £10, in consideration of their long services, and of the assistance they had rendered to the Society in the department of the show-yard at its country meetings.

Warwick Meeting.—On the motion of Lord Berners, seconded by Mr. Milward, Lord Leigh was elected the Vice-Chairman of the Society's General Warwick Committee. The Council also appointed the several members of that committee.

Implements.—Colonel Challoner reported that the Implement Committee had made arrangements for the due consideration of the report to be made to the Council at their next meeting, on the subject of the triennial trials of implements, and on that of the prizes for implements to be offered for the Warwick Meeting. A memorial from implement-manufacturers, containing various practical suggestions, was presented by Mr. Shuttleworth, and referred to the Implement Committee.

Trial-Lands.—Mr. Brandreth Gibbs reported, on the part of Mr. Caldwell and himself, the result of their inspection of the land in the neighbourhood of Warwick for the trials of implements next year, and the arrangements they had made for the land to be placed under suitable cultivation for the different purposes required.

Local Prizes.—On the motion of Mr. Brandreth Gibbs, seconded by Mr. Milward, the following resolution was carried unanimously: "That, in future, if Local Prizes be given, the *same* animals shall not be entered to compete for *both* the Society's and the Local Prizes."

Prize Animals.—On the motion of Mr. Milward, seconded by Mr. Torr, the following resolution was also carried unanimously: "That, in future, as soon as the Judges shall have, in each case, made their decision of an award, the prize animal shall be distinguished as the winner, by such means as the Steward shall think best for the purpose."

Portuguese Agriculture. — A communication having been received by the Council from the Portuguese Government, through its representative in London, stating that the Royal Academy of Sciences at Lisbon were engaged in collecting information on various topics of agricultural interest, the Council ordered, on the motion of Mr. Raymond Barker, seconded by Mr. Pain, that a complete set of the Society's Journal should be presented to that scientific body.

Horse Shows in France.—The Earl of Malmesbury transmitted to the Council a copy of the circular issued by the French Minister of Agriculture to the different prefects of France, requiring reports to be made to him of proposed horse shows in the different districts. These shows are to exclude full-blood horses (they receiving already sufficient remuneration), and are to consist only of breeding animals of the half-bred and draught description. The further conditions of exhibition would be promulgated by the Government on having received and discussed the several reports required.

Drainage in France.—The Board of Trade returned their thanks to the Council for the answers to queries on drainage, on the part of the French Government; transmitting at the same time a copy of the *Moniteur Universel* containing an Imperial decree relating to Government loans for the purposes of drainage.

Pacific Guano.—The Earl of Malmsbury transmitted communications on the subject of guano at Jarvis Island.

The Council having ordered their thanks for the various communications presented to them, adjourned to Wednesday, the 1st of December.

SUGGESTIONS FOR THE BENEFIT OF AGRICULTURE.

At the Euxton Court Leet, Mr. Samuel Downes, of Liverpool and Cheshire, made the following remarks, first, in allusion to the different soils best adapted for producing good crops, and making good dairies. Opinions were various on such subjects, but he had heard from a good agriculturist that the best cheese was made on cold clay farms. In his remarks he would endeavour to adduce nothing but what was practicable, and what any agriculturist might try during the present season. He had no doubt but some of them had discovered some new trait in agriculture, and at meetings like the present they should try and communicate them to their neighbours. The speaker next made some remarks on the manuring of land for the growth of turnips, observing that bones, the manure of which contained the greatest quantity of phosphate of lime, were the best adapted for that purpose; and not only for that, but for preserving the greenness of the fields. He had had the shooting over land on which such manure had been laid some years ago, and the change was very great, the herbage being as good now as when the manure was first put on. He knew a farmer who on twenty acres of new clay land could not keep more than six cows; but now through the agency of manure, other than that of the farm-yard, was able to keep 24. Allusion was next made to the transfer of real estate in the country, the expenses of which were enormous. The transfer of railway property or plant was comparatively easy, but the transfer of real property was not only difficult but expensive, and it was for constituencies to endeavour to obtain a reduction of such charges. The duty should have been discharged by those in authority; but he was sorry to find that most of the men of the present day who were termed eminent men did not give proper attention to these things. But to leave that subject—as chemistry had been applied so successfully to agriculture, he thought photography might greatly assist the producer of stock in determining which animals to breed from. He would illustrate this by a simple fact. A friend of his spent 8*l.* or 10*l.* in going to various localities in order to get the best animals he could. Now if photographs could have been obtained of those different animals, a saving of expense might have been effected, and journeys of many miles prevented. Another difficulty under which the poorer class of agriculturists laboured was the absence of cheap publications, those at present issued being confined to those in higher circumstances. He would like to see one published at a penny or three half-pence, and he was sure it would be appreciated by the farmers. There were some, and all honour to them, who had advanced themselves even under difficulties, but that number would be increased by cheap publications. If some had not advanced, even under trying circumstances, this country would have been a retrogressive country rather than a progressive one. Speaking of the utility of salt, he said that he knew several farmers who had top-dressed potato land with a slight sprinkling of common salt, now very cheap, and it had proved an entire preventive of potato disease. Salt and other mineral manures mixed with farm-yard manures were now used very advantageously for general purposes.

The chairman, G. I. Wainwright, Esq., said, it had been his fortune to attend similar meetings to the present for the last 30 years, and during that time it had been his delight to see around him a set of tenant farmers, amongst whom he had not seen the slightest discord or dissension as affecting the lords of the manor of Euxton. He hoped he might long live to occupy the position he then held, and that the same feeling might continue amongst those present. He next alluded to complimentary toasts, which at such meetings occupied the time which should be devoted to improvement; if he were to tell them about thorough draining, deep ploughing, clean weeding, and heavy manuring, they would all, no doubt, say they knew all that already. It was true they all endeavoured to improve their farms, and draining was one very important part of those improvements, but it was a work of time, and could not be effected in a day. If it was not done as readily as could be wished, the farmer must not blame the landlord, nor the landlord the tenant, but they must go on endeavouring to improve, as he hoped they had done. Improvements were constantly being made in agricultural machines, but these could not be obtained all at once, but no doubt by degrees many would be adopted. A very important matter for farmers to notice was the construction of their farm-steads, in order to make the most of what they possessed. Tanks for liquid manure ought to be made, in order that it might be carted upon the land instead of trusting to the brooks and streams to take it there. He much regretted to see the beautiful stream, the Yarrow, rendered stagnant and the fish destroyed, all by the filth sent from certain print works, and the sewage of Chorley; thus instead of the stream being useful to the farms and the country, it was becoming a nuisance. Thousands of gallons per day of this filth passed down to the sea, which if proper arrangements were made, might be made of great service to the farmer, and would tend materially to lessen the price of guano.

ENGLISH WHEAT SOWING.

The agricultural year has again revolved, and preparations for next wheat crop are now the order of the day. In Warwickshire, seed-time has hardly commenced; for it is found that early sowing runs the risk of becoming flaggy, tillering out largely, and becoming lodged by the mid-summer rains, or getting mildewed and blighted before ripening. This remark holds good either with thin or thick sowing. At least such has been the result of our own experience, with quantities of seed varying from half a bushel to two and a-half bushels per acre. By sowing later in the season—say during November, instead of October—the latter quantity of seed will require to be drilled; less time is given for tillering, the plant does not get "winter-proud," and a better sample, with a more profitable return, is in this neighbourhood the result. But this is a subject which ought not to be dogmatically treated, as there are many matters influencing the practices in different localities. For instance, a most accomplished farmer near Leighton Buzzard—Mr. R. Vallentine, a Mearns man—writes us last week that his wheat sowing was entirely completed, with the exception of a few acres from which the mangolds were not removed. In days bygone, the Cotswold farmers used to sow so early, on their bleak and exposed escarpments, that they had frequently to use old seed, the harvest not being completed in time to supply them with that of the new crop. Now they are to be found sowing wheat on the turnip land, after sheep feeding, nearly up to Christmas.

In the order of preparation for wheat sowing, the bean and fallow fields are the first to receive attention, and then the seeds (or lea ground). Few farmers allow the latter to stand more than one year, and many fields are now being turned over that show a capital herbage. To a Scottish grazier, who would think of keeping the breeding ewes thereon for probably the next three months, this might appear ruthless vandalism. But with a fair breadth of permanent pasture to fall back upon, on most farms, the sacrifice is not recognised. In breaking up the "seeds" for wheat, at this period of the year, it is found desirable to attach a skim coulter to cut a thin slice of herbage from the outer side of the furrow. Hence, when well ploughed, *none* of the grass shows itself above ground; but by so doing you generally get the furrow to lie much flatter than is approved of in the north. Where a drill is employed this is no drawback; but for broadcast sowing a sufficient seam is not obtained. Of the two plans we prefer the one named as obtaining in this district, and for the following reasons:—First, it is well known that the wheat plant likes a solid bottom, and this is better obtained by ploughing a flat furrow than by having it standing up—nice enough to the eye certainly—in the way we have been used to see Barrowman's swing plough, and others of the high cutting ploughs generally accomplish their work. The herbage is much more effectually buried, and thus earlier decays, so as to form food for the rootlets of the young cereal. Second, by the square cutting and perpendicular face to the upward furrow to which we have referred, the *whole* of the ground is moved to an equal and regular depth—a point which in the other case is often neglected, and a species of underground ribbing (as most farmers know) takes its place. Lastly, the use of a drill becomes a needful accompaniment. On the advantages of sowing corn by drill instead of the broadcast method it would seem presumptuous in us to enlarge, as they are now so fully recognised.

By the free use of the skim coulter, harrowing may be at once proceeded with, and little or none of the sod will find its way to the surface. But if it lie a week or two, so much the better, as the furrows then lie better together, and form a new solid surface, which, when barrowed, affords the best possible seed-bed. It will be readily seen that our remarks apply in some measure to the use of the wheel plough, for which we would again ask a full and fair trial from the intelligent and enterprising farmers of Strathmore. To the portable out-door thrashing machine we have often referred in the columns of this journal during the past half-dozen years; but have not of late done so, owing to its practical introduction at the base of the Grampians, and believing that it would most effectually speak for itself. We unhesitatingly add, that with an equally impartial trial, the Bedford ploughs will be more than equally relished.

To return, however, to wheat sowing. The doctrine advocated by "Sigma," *alias* Dr. Newington, already finds followers in the midland counties, and several of "Sigma's Dibbles" have found their way into south Warwickshire. There is no mistake about the result, even if you go to the use and wont plan of common hand dibbling. A leaf of practice is worth a volume of theory, in such a matter as this, and we therefore extract one. An excellent farmer, Mr. Berry, of Ryton, has for several years practised dibbling cereals nearly exclusively. This has been done by the usual plan, viz., a man with two iron dibbles, and followed by four children dropping the seed. And with what result? A saving of seed in the first instance, and a luxuriant, even, upright crop afterwards. We have seen in his fields the stools or bunches of young braird standing almost as evenly and regularly as the rows of cabbages in a market garden. The results above named are just what we want among the small enclosures and tenacious clays of Warwickshire; and already others are pretty freely adopting the practice. On the Hertfordshire chalk range it has been long and widely in repute.

And now as to the seed itself. Scotch samples are this season in demand, as a change, and probably a beneficial one. At all events, the quality is unexceptionable. We saw some being thrashed a fortnight since, in Renfrewshire, at a considerable altitude, certainly ahead of the major portion of wheat as here grown. However, for our clay lands, a change every alternate year of seed corn from the chalk is found to be a very paying thing; and any additional outlay that may be expended, either in point of quality, or by way of change, is sure to bring an ample margin of profit for the investment. Should any of our northern friends care to try a change of seed wheat, or other corn, from the chalk, their wants and orders will be promptly and honestly attended to by Harvey and Raynbird, of Basingstoke. Red wheats are here our principal favourites, as the white is found more tender and precarious in harvesting. The "Golden Drop," a nice plump grain, or "Browick Red," rather a stronger wheat, are both in vogue; and many of the older sorts seem, like some of the fine old-fashioned mealy potatoes, of boyish recollections, to be wearing out altogether. Notwithstanding the large number of wheats named and classified by the indefatigable Lawson—who deserves to be honoured by the agricultural brotherhood of both hemispheres, whatever may be the treatment he receives at the hands of any of the societies—it is surprising how few of them at any one period are fashionable throughout an extensive district.—*Kenilworth, Oct.* 14, 1858.—T. Bowick, in *Brechin Advertiser.*

GREAVES AS A MANURE FOR TURNIPS.

Sir,—Last spring I addressed a letter to our local journals on this subject. I had just purchased a quantity of good greaves, of a most respectable dealer, and being ignorant of their value as a manure, I sent a sample of them to Professor Voelcker to analyze. The learned chemist stated it to be his opinion that greaves were not in themselves a bad manure, but that they could not be equally distributed over the soil, and that the fat which they contained would "prevent air and moisture from penetrating the substance, and retard decomposition and its assimilation by plants." Considering the circumstances, the Professor said he should not be inclined to give more than £4 per ton for greaves, as long as he could purchase the best Peruvian guano at £14 per ton. I bought my greaves at £5 10s., and thought they must be *cheap*.

This was the tale that science told; now for the practical result. I had the greatest difficulty to cut the greaves into small pieces, and it was a tedious process. I then had them well boiled and mixed with ashes and chaff. By this means I hoped to be rid of chief part of the fat, and ensure a pretty even distribution over the soil. All this—the chopping up, the boiling, the mixing, the sowing, &c.—cost fully a pound more, to say nothing of the nuisance and trouble, and the frightful stench. The greaves were sown broadcast, at the rate of 3 cwt. per acre, and ploughed in; and I would observe that, if not well covered up, the rooks, &c., fly off with a great portion. White turnip-seed was drilled, and with it was deposited 2 cwt. of super-phosphate per acre. Both together produced a very good crop of turnips for the season; but the greaves without the super-phosphate were almost a total failure. The roots are not much bigger than marbles, except where one seems to have fastened on a large knob of scrap cake. The super-phosphate alone grew a good crop. For many weeks I could not see any difference between those and the others grown with greaves in addition; but about six weeks since I thought the tops were greener, and I now fancy those with the mixture of the two manures are the heavier crop. But it requires some close attention to discover the difference, and I am sure no valuer would put them at 10s., perhaps not 5s., an acre above the others. It is my opinion that the following is the cost and fair value per acre of each experiment:—

			Cost for manure.		Value per acre.		
	s.	d.	s.	d.	£	s.	d.
3 cwt. greaves........	18	6	32	6	3	0	0
2 cwt. super-phosphate	14	0					
2 cwt. super-phosphate........			14	0	2	10	0
3 cwt. of greaves			18	6	1	0	0

This is a very high price for the last lot, but as they are small and now growing well, they may be useful for ewes in the spring. These turnips have cost 3s. an acre for an extra hoeing, and are now not so clean as the others.

Science and practice appear to agree well in this instance; and if I had paid Professor Voelcker 10s. for analyzing a sample of the greaves before I bought the bulk, I should have saved as many pounds. I only hope the result of my experience may be useful to my brother-farmers.—I am, sir, your obedient servant, East Norfolk.

26th October, 1858.

ON THE MICROSCOPIC EEL (ANGUILLULES) IN SMUTTY WHEAT.

TRANSLATED FROM THE FRENCH OF THE "JOURNAL OF PRACTICAL AGRICULTURE."

M. Davaine, Laureat of the Institute, has commissioned me to present to the Society of Agriculture his researches on the eel of smutty wheat, considered as relating to natural history and agriculture. I have coupled this presentation with reflections which comprise a succinct analysis of that fine work, crowned last year by the Academy of Sciences.

"We have known for a long time," said he, "that singular alteration of the cariopses of wheat which constitutes what we call smutty wheat; but it remains still to clear up a host of obscure points of its history, as, for example, what is the true nature of that disease? what are the conditions of transmission and development of the entozoaires to which it is owing? what, in short, if there are any, are the most efficacious means of preserving our crops from it?"

Many agriculturists still confound under this name of "smut" very different diseases—the black rust and caries, for instance—and there are very few at present who know positively that *that* which we have now under consideration is a sort of gall-nut, produced by the presence of myriads of microscopic animalcules, enjoying the marvellous faculty of regeneration, or rather of resuscitation even many times after an apparent death, more or less prolonged, as soon as they are moistened with a little water. But it is not the practicians alone that we can charge with this ignorance; the accusation applies as well to distinguished agriculturists, who know by books the affection to which it refers, but had never had an opportunity of seeing wheat smutty by nature. We feel not the slightest compunction in confessing that we ourselves were not more advanced four or five years ago; and that will not excite any surprise if it is well considered that the disease is scarcely mentioned in the greater part of general treatises or dictionaries of agriculture, even the most modern and esteemed, although the discovery of wheat-eels dates more than a century back, and that these *helminthes* (intestinal worms) have since then been a subject of study with many eminent naturalists, who have not said a word about it. We ought, in justice, to except however *The Good Gardener's Almanac*, in which we find summaries, in a few lines, of the notions formerly entertained of this sporadic affection; that is to say, scattered here and there, always serious, in the country where it prevails, but happily unknown in certain districts, particularly in the north of France. It is therefore in general to works on natural history, and above all to certain memoirs of the Abbé Rosier and Tillet, that up to this period it was necessary to have recourse for information on this subject.

The treatise of M. Davaine is divided into two parts. The first being purely anatomical and physical would not possess with agriculturists the powerful interest the second is calculated to create. It is therefore chiefly of this that we propose to speak to them a moment.

The author points out the nature and physical character of the pathological alteration, its effects, its frequency, its mode of propagation and transmission, as well as the means of prevention and treatment.

The works of Needham, which have so improperly excited the railleries of Voltaire, those of Baker, Gennani, Spallanzani, Roffridi, Bauer, Tillet, &c., had already made known both the disease of the grain and its causes. Tillet, above all, had perfectly described the symptoms presented by the stubble and leaves of what they call "*abortive wheat.*" But it is reserved to the author of this new treatise to show, by following the *anguillules* in all, even the most secret, phases of their existence, by what means these *helminthes* (intestinal worms), hidden in the centre of a grain of smutty wheat, revive in contact with moisture, gain by degrees the straw, the leaves, and the young spike of the new plant, penetrate and finally lodge themselves in the *parenchyma* (or pulp), still in a mucilaginous state, and not in accordance with the scales of the springing flowers, where their presence determines this *hypertrophy*,* this sort of gall-nut, which constitutes the true smut. Delicate and multiplied experiments on the vitality of the anguillules have suggested to M. Davine prophylactic and curative measures; and those experiments, the extreme difficulty of which must be apparent to everybody, have been repeated with success, and verified by our colleague, M. Decaisne. They have, above all, served to establish this fact, that the anguillules, which are able to resist intense cold—20 deg., for instance—cannot bear without perishing a temperature of about 70 deg. above zero. Now, as the author judiciously observes, the grain of wheat, an essential condition of the life of the parasite, losing commonly at this last temperature the germinative property, what had enabled these *helminthes* to continue the possession of a faculty become superfluous?

An acquaintance with the mode of propagation and transmission of the *anguillules*, not less than their vital properties, all subjects perfectly obscure or unknown previous to the new and interesting researches of M. Davaine, could therefore alone lead to the discovery of the means of preserving the wheat from their attacks. The following are those he considers to be the most efficacious:—

1st. The common liming of wheat, so useful against the propagation of smut and carbon, has here no effect, and the cultivators will do well not to calculate upon it. Instead of employing for this purpose lime or sulphate of copper, which acts effectually only upon the entozoaires laid naked, they will find a greater advantage from acidulated water. Thus, one part of sulphuric acid to a hundred and fifty parts of water, and a steeping of twenty-four hours in this water, will suffice to destroy infallibly all the anguillules contained in the grain. This process of preservation is clearly neither expensive nor difficult to carry out; the wheat submitted to it is in no respect altered by it, and preserves its germinating properties.

2nd. It has been stated, from observation, that a diseased ear may often contain as many as sixty smutty grains. Reckoning only on an average of thirty, as each grain contains about 10,000 larvæ, we have therefore, at the lowest estimate, 300,000 per infected ear. Now, a very small number of these larvæ being sufficient to infest a fresh plant, we see at once of what importance it will be to purge the wheat of these smutty grains, if we wish to sow it two consecutive years on the same piece of ground. But the practice of the rotation of crops is opposed to the propagation of the anguillules in this way, since, cast upon the soil and buried by the plough, the grain quickly rots, and the revivified larvæ, finding no longer the conditions necessary to their existence, do not remain alive more than five or six months. The alternation of crops is therefore the second means of preservation.

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* Or "a morbid enlargement of any part of the body."—*Webster.*

3rd. There is still another important precaution recommended by the author, and which we must not pass by in silence, namely, to avoid throwing into the dung the screenings of infected wheat, which carry back again the smutty grains upon the fields, because the fowls will not touch them. It is therefore desirable to burn the screenings; and if we wish to make use of the thin or abortive grains which are often mixed with them, it will then be desirable, before throwing them to the fowls, to pass them through the oven after the bread is withdrawn. The anguillules, not being able to support a temperature of more than 70 deg., will be infallibly destroyed without return.

Hitherto we have only referred to the facts interesting to rural economy, and of these we have spoken only of the most important. Those which belong to the province of natural history are much more numerous and quite as unexpected. Thus, to mention only one, M. Davaine is satisfied, by repeated experiments, that the faculty of awakening themselves from their repeated drowsiness is the privilege of the larvæ, that is to say, of the anguillules of the wheat still destitute of the genital organs of the two sexes; but that this faculty ceases as soon as the insect reaches the adult state, and these organs have made their appearance and entered upon their functions. For having thus reproduced by their eggs a new race of larvæ, they have fulfilled the task assigned to them by nature.

It is unnecessary to urge further, what we have said being sufficient to convince every one of the importance of this work, and of the novelty of the facts which it relates.

Dy. Montague,
Member of the Academy of Sciences, and of the
Imperial and Central Society of Agriculture.

THE ACTUAL PROFITS OF THE FARM.

Who has not felt hard-up for a subject? "Copy is waited for," grates unkindly upon the ear; more especially when the tired brain has been ransacked to its utmost resources to produce it.

It is not that subjects are exhausted, or that follies present themselves less frequently to court a random shot as they fly past: the brain, like the tired huntsman, requires repose; and, although the joys of the chase are the same as they ever were, still the winding of the horn may fall flatly upon the ear, and the view-halloo rouse to action no more.

To drop the metaphor, the pursuits of the agriculturist partake of the monotonous round of the hunter: the most sanguine temperament must at last succumb. The seasons follow each other in rapid succession, anticipation is lost in the result; year succeeds year, with little gain beyond that of a few additional wrinkles—a little more experience, and the reputation of having obtained profound knowledge of the science. Agriculture, as a pursuit, is perhaps the most delightful that falls to the lot of mortals to carry out. It is, however, a plant of such slow growth that we can scarcely mark its progress by its results; and few succeed in it so as to raise themselves to independence, unless from some fortuitous circumstances arising over which they exercise little control. The shortest return, in a money sense, occupies a whole year to effect; and an investment by way of improvements occupies a long lease to again restore it. The returns are so limited, that there is but little scope for profit, and less for speculation. Men upon small farms must submit to downright drudgery to live; men on middle-sized farms barely make ends meet; and upon large ones they generally entrust the management to others, and at length wind up with a loss of the largest portion of their property.

With the wise man we can say that we have been young, and now are old; yet we have never seen much property realized by farming. In some few instances, as in one that recently has happened near us, we have seen some fifteen thousand pounds saved by farming; but in that case the tenant occupied a good farm, was a bachelor, kept no company, and one pony of fourteen hands high served the establishment, which consisted of a housekeeper and one maid-servant. The festive board never smoked for others, strong beer and fat bacon were the usual routine in housekeeping, and this man realized some fifteen thousand pounds upon a farm of 200 acres. But mark the contrast. In a large parish, in which we were long resident, for thirty years no other individual, but this, has realized a fifth part of that sum, although there are scarcely any of them but have been painstaking men.

We are aware that many of our readers will be disposed to cavil at these observations, and some of our younger farmers of sanguine temperament especially; but when we come to dissect the question, and apply our reasoning to the subject, it becomes apparent why such things are, and why they will be likely so to continue.

The return, in trading phrase, in farming is too slow for the realization of profitable results of any magnitude; for, seldom less than twelve months, but more frequently for eighteen months, a large investment of capital is being occupied for a single return. And upon dividing the outlay into five portions: viz., rent and labour—keep of horses—rates, taxes—seed corn, and insurance—and fifth, profit and housekeeping—it will be at once seen that the expenses cannot be much reduced upon either of these divisions without materially reducing the gross return. In fact, over four sections of the outlay little power exists; and it must therefore be to the returns that the main effort must be directed to insure success; and it is not merely by application of capital that this can be produced, but by its judicious application and attention to *minutiæ* as regards expenditure throughout every department of management. If we were advancing a theory, it might require considerable effort on our part to convince our readers; but we are dealing with a proposition, which every one can dissect as well as ourselves. Assume 100 acres of arable land as the quantity cultivated, then £1,000 will represent the investment, and £500 the return, £100 will be the labour, £100 the horse labour, £100 the rent, £100 tithes, rates, taxes, seed corn, and tradesmen's bills, and the remaining £100 the interest of capital and profit. Examine all these separately, and reduce the returns to £400, and then see from which of the before-named payments the difference in outlay is to be obtained, three out of five being fixed payments, and not admitting of any reduction whatever.

It is not our intention to throw cold water upon a pursuit which every one admits to be the most natural and most pleasurable; but most persons who enter upon it to make money, we have little hesitation in stating will be deceived. Just weigh the consequences before we proceed:—£1,000 invested, returns £500 in 12 months, of which £100 only can be calculated upon as interest of capital and profit, while the difference in result must be looked for rather in the time the return occupies than in the profit itself. The sum invested might, in trade, be returned from four to six times in one year, with a like profit of ten per cent. each time. B.

THE ENGLISH FARMER IN FRANCE.

Sir,—In my first letter I described the appearance of the country in autumn; it then looked like an immense ploughed field. Now that it is covered with various coloured crops, your readers may think it is like harlequin's jacket; but no such thing. Since writing to you last I have been in England for a few days, and I am sure the average size of the pieces is not smaller than the fields in the Weald of Sussex, or in our manufacturing districts, and unincumbered with the useless bustleheaded trees the hedges are filled with. It really is extraordinary how in 1858 any landlord can be so blind to *his own interest* and the interests of his tenantry, as to allow his property to be so wasted and destroyed without any one reason for it, but, on the contrary, causing to all parties a serious loss. The amount of rent must be much reduced by it, and such timber when sold must fetch a mere nothing. I believe the worst trees do the most injury.

Had I an estate of this nature, I would immediately give all the timber below a certain size to the tenants to assist in paying the expense of grubbing all the trees and hedges on the farms, &c., engaging within a certain time to replant quicks—where, and how, may be previously agreed on. I say previously, as this is just such a matter as would be likely to bring the tenants and the steward into collision; but if the new lines of fences were mapped out, no dispute as to the direction of them could arise. The mode of protection should be entirely left to the tenant; as, if he binds himself to do so, he should certainly have the choice of "how." I do not suppose any tenants would be found to object, but did they, it is no reason why they should not have the offer; but in that case I think charcoal burners might be easily found who would gladly contract to do it.

As my remarks are meant as comparisons between the husbandry of Flanders and England, that your readers (who have never visited the former) may think and judge for themselves as to the expediency of adopting or improving on them, I will make a short calculation (open to correction always) of the quantity of land lost to all profitable uses, and also the *rod wide on each side* the hedge injured by the roots, shade, and *drippings*, aye, and I may add, fallen leaves in autumn.

Now, let us suppose the average of the fields in the Weald of Kent and Sussex to be 6 acres (query, is it as much?) each, an oblong of 36 rods by 28 (we will only take two sides of each field, and will also leave out the outside hedge of two sides of the whole farm): this is 64 rods round one side and top of every field.

Now, we will say, hedge, ditch, and *brow* take a rod; the shade and roots, &c., spoils another *rod on each side;* this is 3 rods, or exactly *one-fifth* of the whole farm; either the tenant pays one-fifth more rent than he ought, or (if it was deducted when the rent was "set") the landlord receives one-fifth too little. If the former is the case, he can abstain from thus injuring his tenant for the future; and if the latter is the case, he can absolutely increase his rent-roll *twenty per cent.* with *popularity* and benefit to his tenant; for what farmer would not rather pay one-fifth more rent to be rid of such nuisances, and have a fifth more land? and the best land too on all the farm. Where an old hedge-row has once been, may always be known by the better crop on that spot.

The corners of these little fields—indeed, nearly all fields—are not considered worth cultivating, and are consequently a nursery for docks and thistles. Now, in Flanders the corners and outsides of the pieces of grain are the best, if there is any difference, as there is the more air; and consequently, as regards the general crop, the more the land is subdivided the better, as the more air surrounds the corn—following out somewhat the principle of old Tull, of having fallow spaces between his "stetches" of wheat, which, when headed, arched over these unsown alternate fallow ridges, and so the ears had double the space of the roots, and by this means he attempted to grow wheat every year, in the same field, *but not on the same land.*

Any gentleman having an estate of small farms should come here. I expect there is not a worse cultivated tract in Europe than the small farms of England. The tenants are not all to blame. They want the three things needful—capital, knowledge, enterprise; and unfortunately you generally find them located on the poorest soils.

In Flanders, on the contrary, it is the best of land thus let in small holdings, and their system is especially adapted to seeds. How I should like to see one of these men placed on a hundred acres of Sussex clay! Though he comes off such first-rate soil, he would soon show you he knew his trade. Of course he would begin by draining and stocking up all trees and hedges; next, deep ploughing, continual hoeing, light dressing on his root and grain crops, till he had cows enough tied up *winter* and *summer*, to manure his whole farm well, in three years at least; not a pint of liquid manure would he lose. The simple manner in which they carry and distribute it on the land, places it in the power of every little farmer.

In my pamphlet on Sorgho is a sketch of how it is done. I cannot think any machine can be invented that will not clog, or cost much more than their primitive mode. What an enormous sum in value is the annual loss in England of the liquid manure which runs to waste!

Some landlords may say, "If I destroy all my trees, what am I to do for timber for repairs?" They do not need any. Build and repair with bricks, as they do here; or rather, build only, for so substantially is that done that repairs must be very trifling indeed. They have a very useful, but very ugly sort of elm here, growing a great height before it throws out branches, and having a very small head. I cannot imagine a *tree* less injurious to the soil; but little of it is used on the farms. The barns have buttresses like churches, the doors are all arched, the coigns are all of stone, and the base floors of clay, made most excellently. One day I was at a farmer's, of 100 acres, his own property, and I observed it was a pity he allowed the horses in harvest to go upon the floor. He said they never did; but on this occasion they had cut up the floor a little, having gone too far in *pushing the waggon in*. They literally put the "cart before the horse." A long pole is fixed in a socket at the hinder part, and the two horses have their "weightree" hung on a hook which is on it, and so with their noses close to the tail-board, and one horse at each side the pole, they draw, and so *push before them* the waggon of sheaves on to the floor. By their mode of harnessing, this did not take two minutes.

The eaves of all the buildings project so far as quite to clear the wall from all rain or droppings. This is good in every point of view: protection to the walls, and convenient to the farmer for ladders, harrows, and all his light implements, and, lastly, more picturesque. The latter, where it can be combined with usefulness without extra expense, I hope will never be lost sight of.

The roads about a farm, or lanes in a country parish, are very frequently paved wide enough for one waggon in the middle. Now, in many parts of England stone is cheap, but our mode of laying them is expensive, and I do not know if it is superior to theirs. They are all laid in sand, in the most crowded towns as well; and where any drop a little, a man and boy come round with sand and a crowbar, with which he lifts the stone and rams in as solidly as he can more sand. They certainly are excellent pavements for heavy loads.

Near all towns, and in many parts of the country also, there are two stone posts erected, about a yard high, one on each side the road, to which are fastened a chain, to prevent any *heavy* traffic for a day or more after the breaking-up of a frost. It would seem to us a wondrous interference with our liberties and our business; but here it is thought the lesser evil, and I think so too.

Now, it strikes me this cheap mode of laying paving stones for roads might often be very effectively adopted in and about our farm-yards.

The raised paths all round the yard, and the manure tank in the centre, is found as regularly in the small as the large farmery, and take them altogether (though not so attractive to the artist as the straggling yards and sheds too often seen in England), their farm-yards and buildings, and small houses forming a square, and all closed in with high gates, under an arch, are certainly the sort of warm and comfortable erections exactly adapted to the 50 or 60-acre farm.

On a small hiring, in good condition, 'tis a great loss to lose a plant of anything in England. 'Tis not so much so here; they have such a variety of crops, that we have not, that the moment one has failed, the ground is ploughed, and another sown. This year has been so dry, the "lind" is lost, and last week most was pulled up, and is in "long shocks," about two feet high. Their coleseed, to balance this, is excellent, and is being cut; on this they will sow turnips for their cows, and many will try sorgho. Here, the tenderness of the soil is a great assistance to them; the majority of our lands are too stubborn to be pulverized as fine as sand at one ploughing; but this must not make you condemn all their practices as inapplicable to us. No; come and see. An English Farmer in France.

Lille.

THE CULTIVATION OF MANGEL WURZEL.—A Ruddington correspondent furnishes some interesting particulars relative to the cultivation of this useful root, which may not prove uninteresting to our readers. He states that in 1857 he had a crop of mangel, which, when weighed in three different parts of the field, gave in weight the following, viz.:—First lot, one row 20 yds. long by 2ft. wide, 40 bulbs, weight 260lbs.—equal to 42 tons 2 cwt. 2 qrs. 24lbs. per acre; second lot, one row 20 yds. long by 2 ft. wide, 40 bulbs, weight 275lbs.—equal to 44 tons 11 cwt. 1 qr. 5lbs. per acre; third lot, one row 20 yds. long by 2 ft. wide, 40 bulbs, weight 223lbs.—equal to 36 tons 1 cwt. 0 qr. 15lbs. per acre; average weight per acre, 40 tons 18 cwt. 1 qr. 13lbs. In this year, 1858:—First lot, one row 20 yds. long by 2 ft. wide, 42 bulbs, weight 328lbs.—equal to 53 tons 3 cwt. 0 qr. 8lbs. per acre; second lot, one row 20 yds. long by 2 ft. wide, 50 bulbs, weight 307lbs.—equal to 49 tons 15 cwt. 0 qr. 1lb. per acre; third lot, one row 20 yds. long by 2ft. wide, 48 bulbs, weight 240lbs.—equal to 38 tons 17 cwts. 3 qrs. 12lbs. per acre; average weight per acre, 47 tons 5 cwt. 1 qr. 7lbs., being an increase in weight in 1858 over 1857 of 6 tons 6 cwts. 3 qrs. 22lbs. per acre. The above crops could be shown perfectly clean. As soon as the wheat crop is off, the land should be worked with Ducie's cultivator, but if free from twitch, Bentall's scarifier will do equally as well. Then manure the land as early as possible, or when the carting will do well. Plough the manure in shallow, and follow with a subsoil plough, altogether about 14 inches deep. The work should be done so as to have the benefit of the winter frosts. Sow on the flat with Garrett's drill 6lbs. of seed per acre, to ensure a regular plant, and watch the young plants as they come up. If the slug attacks them, sow in the early morning 2 cwt. of salt mixed with 1 cwt. of guano per acre, which will greatly improve their growth.—*Notts Guardian.*

LONDON, OR CENTRAL FARMERS' CLUB.

"Another important feature in this Society was the relation which it bore to cottage tenants and cottage holders of allotments; and no society could be more usefully employed than in improving the cultivation of cottage gardens and allotments, for they could not overrate the benefits which it conferred on the working man. Instead of wasting his time, when his day's work was done, at the public-house, or in idle amusement or dissipation, he employed himself in his cottage garden or allotment, whereby he was enabled to pay his rent; and in that way it was not only the greatest possible benefit to the tenant, but also to the landlord. His agent, Mr. Mein, to whose talent and enlightened intelligence he bore a willing and heartfelt testimony, fully appreciated this system, and had his full instructions, so far as he might be able, to carry it out to the greatest possible extent, and in the most practical manner, so as to be most beneficial to the cottage tenants."

The above is from the address of a nobleman who stands officially at the head of English agriculture—his Grace the Duke of Marlborough, the President of the Royal Agricultural Society of England. It was delivered by him at a recent meeting in his own county—that of the Chipping Norton Association. Within a few days, all that was advanced here has been very signally supported in another place. The practice of the President of the national Society is confirmed by a general meeting of the national Farmers' Club. The benefit which the allotment system confers on the labouring man would appear, indeed, to have become so manifest as to admit of but little discussion.

It is remarkable, moreover, to see how thoroughly the three classes to which the poor man must look agree on this point. A great good is rarely established without the opposition of some conflicting or petty interest. But there is none such here. The Duke of Marlborough says his agent, Mr. Mein, fully appreciates this system. It was Mr. Trethewy, the agent of another large landed proprietor, the Earl de Grey, who brought the subject before the members of the Farmers' Club. And when, this summer, as a kind of prologue to the meeting in town, we spent that pleasant day at Silsoe, the representative of another nobleman, famed for his broad acres and their good management, met us there, prepared to support all his neighbour could say or show us. This was Mr. Bennett, the well-known agent of the Duke of Bedford. We stand, then, at once secure of Blenheim, Woburn, and Wrest—three of the great Houses of England; show-places that people travel their hundreds and thousands of miles to see, and that are great not only in pictures and the picturesque—in horses and hounds—in ancestry and hospitality—but in a peasantry worthy of the scene. Where every man may now have his rood of ground, although without attempting the impossibilities with it poor Goldsmith sung in those sweet-flowing, mischief-making lines of his.

It is by no means going too far to distinguish the last Farmers' Club discussion as the best of the year; and this despite the prevailing unanimity of opinion and the exhaustive force of the opening paper. There was, indeed, scarcely a material point but which Mr. Trethewy touched on, and as rarely but that the meeting endorsed his opinion. The first great prejudice, that when a man has done a good day's work for his master he should neither have the time nor the heart to do anything for himself, is palpably worn out. In fact it is not now a question whether a labourer should have the chance of cultivating a bit of land or not, but rather how much he should have, where he should have it, and at what rate he should have it. It is over these points that the nice discretion must be exercised, so that his strength be not in any way over-marked. He must not have too much land for his leisure; it must not be too far from his labour; and it must not be too high for his means. Let us keep to the poet's rood of ground, and at not more than half-a-mile or so from his cottage. At the first blush it would strike one as especially desirable that, wherever it is practicable, the allotment should be nothing more nor less than a garden round about the labourer's dwelling. Nothing would promise to attract him more towards home, or keep him better employed when he got there. Every idle five minutes might be spent in the garden; whereas, more particularly in the short winter days, the time consumed in reaching the allotment might hardly warrant his going at all. Mr. Trethewy's experience, however, tends to show that one great advantage of the allotment system is that it creates a spirit of emulation amongst the holders. Laid strip by strip, and side by side, it becomes a point of honour amongst them who shall do his "piece" the best. And we can really, without much stretch of the imagination, suppose that many a man who would be but a slovenly cottage gardener might turn out a very good allotment cultivator. This, though, only the further proves of how much benefit the much-derided prize system is susceptible. Still, we cannot see that it is altogether inapplicable to the improvement of the cottage garden. In travelling this summer by the railway between Edinburgh to Aberdeen, we were struck with the especial neatness and taste with which the grounds and gardens of the different stations were kept up. On inquiry, we found that the Directors were in the habit of giving a series of premiums for those the best maintained, and that on a certain day they went in judgment through the line. The same kind of thing would promise to tell almost as well with labouring tenants on an estate: although we must allow that the daily comparison of one man with another would be wanting. But, where practicable, we should lean for the bit of land being part and parcel of the cottage holding. A man is never so thoroughly out of temptation as when at home.

There were certain other matters of a more strictly moral tendency that also came in for consideration. As, for instance, that a man should never be permitted to work his ground on a Sunday. It happily turned out that scarcely any one but the gentleman who advanced this had ever heard of such a thing, although we believe that in some lettings there is a special condition prohibiting it. As a rule, however, the less the man is controlled by any such regulations and instructions the better; and at the same time the more he is of a gardener, and the less of a farmer, the more mutually convenient will it be. There have been cases where the servant has been anxious to get in his harvest or to put in his seed just at the very time the master wanted him for the same purpose. Just, in fact, when labour is scarce and the allotment rather in the way of both of them. Then Mr. Bennett objected to a stiff clay for the purpose, while Mr. Mechi appeared to think "a good honest clay" good enough for anything. Mr. Williams would encourage a man to keep two pigs; but others considered one well done, sufficient. But to the one great conclusion they were all agreed. Combined with some few other causes, such as the New Poor Law, the allotment system has had a direct tendency to raise and improve the character of the labourer, and to relieve the ratepayer—to make him, in a word, more independent and self-supporting.

Throughout the discussion there was but one want. We are no great advocates for the parson taking much of a lead at agricultural meetings; but this was just the time and place for the clergyman of the parish to say a word or two. We believe as a class they have as much to testify in favour of the system as either the landlord, his agent, or the tenant. Such evidence would have completed the case of a very able advocacy.

THE ALLOTMENT SYSTEM.

The first monthly meeting of the Club, after the usual autumnal recess, took place on Monday evening, Nov. 1, at the Club-house, Blackfriars. The subject for discussion, introduced by Mr. H. Trethewy, of Silsoe, Ampthill, was, "The Allotment System, its Uses and Abuses." Amongst those present were Thomas Owen, Esq., of Clapton, in the chair; supported by Messrs. B. P. Shearer, W. Bennett, H. Trethewy, J. J. Mechi, S. Skelton, E. Little, W. Gray, John Thomas, C. J. Brickwell, E. Purser, R. T. Howell, J. B. Spearing, J. G. King, J. Tyler, T. Stagg, J. A. Williams, M. Reynolds, T. Congreve, F. Dyball, R. Marsh, Dr. Ellis, R. F. Jennings, J. Halkett, S. Sidney, W. Eve, E. B. Acton, R. B. Hammond, B. E. Waite, J. Russell, &c., &c.

The CHAIRMAN, in opening the proceedings, observed that they were again assembled together after the usual period of suspension as regarded meetings for discussion. Looking back upon the last three or four months, they would, he was sure, all agree with him that they had cause to congratulate themselves and the country at large on the beautiful season which they had had (Hear, hear). Whether they considered the crops they had secured, or the manner in which they were secured, they must all recognise a boon to themselves as producers, and also a blessing to the consumers (Hear, hear). Prices were another matter; but for the actual gathering of the crops, they could not be too thankful. The subject on the card was, "The Allotment System, its Uses and Abuses." That question would, no doubt, be well received by the Club; and he thought they were very fortunate in having so able and competent a person as Mr. Trethewy to introduce it (Hear, hear). There was no one, he believed, who had had greater experience with regard to the allotment system, who had shown more interest in it, or who had been more successful in carrying it out (Hear, hear).

Mr. TRETHEWY: It may be said that the subject which I have the pleasure to introduce to you this evening is one more calculated for the consideration of land owners, and those concerned in the management of estates, than for discussion at a farmers' club. A little reflection, however, will show us that it is one involving, if possible, even more the comfort and prosperity of the occupier than of the owner of the soil; for it cannot be denied that much of the success of the farmer depends upon the class of labourers he may have about him, whether steady, industrious, and skilful, or otherwise. No matter what skill and capital the agriculturist can command, unless the strong arm and ready will of the labourer are at hand to carry his designs into execution. Any system, therefore, having a tendency to elevate the moral character of the labourer, and to improve his condition, must be worthy of encouragement; and, therefore, I think the committee have exercised a proper discretion in selecting this subject for an evening's discussion, for it is one upon which much prejudice exists, and not without some reason, as I shall presently show. Like many other useful schemes, the allotment system has suffered from the injudicious zeal of its advocates, some of whom have taught people to expect too much from it, and who themselves have regarded it almost as a panacea. Hence it has in some instances been carried to such an extent as totally to alter its character, and therefore the prejudice, which I have just alluded to, has arisen against it. A desire for the occupation of land is inherent in the human mind. From the nobleman and large landed proprietor, who cultivate their own broad acres, to the dwellers in our cities and towns, this feeling is continually manifesting itself. Almost every man, whatever may be his pursuit in life, attaches himself more or less to the soil. He feels that he possesses in his garden, or paddock, at least one spot which he can call his own, and where he can indulge his own peculiar taste. No wonder, then, that the labourer, whose very existence is identified with vegetable life, should participate in this feeling. No wonder that while the greatest portion of his time is devoted to the cultivation of the crops of his employer, he should aspire to the occupation of a small area for himself, independently of its value and convenience to him. And when we consider how influential this feeling often is, in diverting his attention from places and objects having a tendency to demoralization, surely it is the duty of every one interested in his well-being, so far as is consistent, to promote his wishes. How many hours, which might otherwise be passed in the alehouse, may thus be spent in profitable occupation! But here it is possible I may be met by an objection, which I have sometimes heard made, that, if the labourer does his duty to his employer during the day, he can have little desire to work afterwards. In other words, that he employs that strength and exertion on his own land which of right belong to the farmer who pays him for his day's work. To this I would reply, that if the day's work is done (and I apprehend no employer would keep on a man who habitually failed in doing it), to restrain him from devoting his leisure hours to his own pursuits, would be to reduce a labourer to the lowest degree of serfdom. Upon this principle the cottage garden must go uncultivated, and all recreation would have to be given up. I do not, however, for one moment, anticipate such an objection at the Central Farmers' Club in the nineteenth century; and it is, therefore, scarcely necessary to advert to it. To trace the history of the system, as it is now developed, is not my intention, but rather I would seek to offer a few practical remarks upon its working, that those who are favourable to a trial may benefit by the experience of those who have already introduced it. I may, however, remark that so long ago as 1796, the state of the labourer attracted the attention of several influential persons, by whom a society was formed for "bettering the condition and increasing the comforts of the poor," of which King George III. was patron. This society published reports from time to time till 1814, from which it appears that one of the principal elements of success they considered the "allotments of land to the labouring population." Other attempts, having the same object in view, were shortly afterwards made; but about the year 1830, a number of noblemen and gentlemen, "to meet the pressing exigencies of the times," formed a society called the "Labourers' Friend Society," having more especially for its object the obtaining a small portion of land for the labourer, "at a moderate rent in addition to the fair price of his labour." They published a very interesting report in the year 1835, which I should be glad to extract largely from, would time and space permit. One cannot but feel thankful, after perusing some of their reports, and comparing the state of the labouring population of those days with that of the present generation of labourers, for the great improvements which have taken place, both in a social and moral point of view. But it would be attributing too much to the system they advocated to give it credit for all this improvement. Various causes have operated to accomplish this end: education, improved dwellings, and, although last, not least, an alteration in the poor laws. In Bedfordshire allotments were laid out on the estates of the Duke of Bedford and Earl de Grey, in the year 1829. In that year it appears that on the former estate, in the parish of Maulden, 18 acres were divided into parcels of from 20 to 40 poles each; while on the latter estate, in the same year 30 acres were set out in parcels of from 1 rood to 2 roods each. Other proprietors soon afterwards followed these examples, until garden allotments became very general. I would, however, here observe, and I beg particular attention to the remark, that it is not my opinion that allotments are suited to all districts; and that it does not follow that, because they answer well in one locality, that they will succeed in another. It would be a task far beyond my power to point out and describe such districts, residents being by far the best judges in the matter. I would merely observe that where labourers live in villages, as in the midland counties, the system would be more practicable than in those districts where they more generally reside on the farms they work upon. In selecting ground for allotments, the principal points to be attended to are *situation* and *soil*. It is of the utmost importance that they should be within an easy distance of the dwellings of the poor; and should the village be a long and straggling one, a central position would be the best, unless it were expedient to have ground at each extremity. The *nature* more than the *quality* of the soil has to be considered; for it is astonishing how much poor thin land is improved by spade husbandry, while strong heavy clays are wholly unfit for the purpose of allotments, no matter how well they may be drained. Of course, the rent would be in proportion to the quality. As in every other instance, good land would be preferable to bad; still, its adaptation to the purpose, as being easily worked, is the main point. And now as regards the quantity for each occupier. My experience convinces me that a rood is sufficient under almost any circumstances; and the greatest error that has been committed, has been the allotting of too much land to one individual. To dwell upon the evils arising from such a proceeding is scarcely necessary, as it must be obvious that without sufficient capital the occupation of land cannot be attended with profitable results. Some instances in confirmation of this view have come under my own observation, and I can confidently assert that instead of the position of such men having improved, it has retrograded. Occupied nearly the whole of their time upon their own land, they can no longer be classed under the head of labourers, and they actually injure regular workmen by throwing their labour into the market at seasons of the year when the demand for it is unusually depressed. If it be argued that the restriction of the system would have the effect of preventing a labourer from improving his condition, and effectually debar him from rising in the world by his own industry, I would answer that I am not now discussing the relative advantages of large and small farms, but am confining myself to the agricultural labourer in the broad acceptation of the term. Every employer knows, and every man of common sense must feel, that it is as important to the farmer to have his regular men at work, at all times, as it is to the manufacturer or tradesman, and that the business of the farm could not be carried on without such regularity. I regard it, then, as a fatal error for the labourer to follow any pursuit that would at all interfere with the claim of his employer upon him; for, be it remembered, that it is upon *hired* labour that the working man must chiefly depend for his subsistence; and any scheme that has a tendency to interfere with this, his chief capital, must very shortly end in disappointment and distress; but any plan that can be devised which will improve his condition, without interfering with his free labour, must be hailed as a great boon. Such, I believe, the allotment system properly managed to be. That there always have been, and that there always will be, men to raise themselves by their own industry above their original position, no one can deny; nor would any man of common justice and generous feeling attempt to prevent such an occurrence; but such men have always risen *gradually*, and not at once jumped from the one state to the other. Wherever a man shows himself superior to his fellows in intelligence, skill, or application, he will be sure to push himself, and by obtaining higher wages, the natural result of his superiority, gradually improve his position. And it often happens that such men, after saving a little money, are assisted by their former employers, or by others who have watched their career, in accomplishing the object of their desire, whether a small occupation or otherwise. By the sweat of his brow man must ever live, and so long as society exists there must be rich and poor. A marked distinction should, however, be made between cottage allottees and market gardeners. In some counties, especially in those near London, and other large towns, there are a class of men who earn their livelihood by the occupation of a comparatively small portion of land devoted to the production of fruit and vegetables. In some instances they are men of great capital, and carry on their business upon an extensive scale; but the men I more particularly allude to are those occupying only a few acres, and who subsist upon them. I say a marked distinction must be made between those men and farm labourers, and to the former my observations as to the size of allotments are not intended to apply. I will now say a few words upon rents and managements. As regards the first, I can only state that it must be an open question, as in the cases of farms and other occupations. There is no reason, that I am aware of, why the labourer should have land at a lower price than others would give for it; nor do I see upon what principle he should be asked to pay more. After all, it is not a question of rent, so much as to have the allotment ground on a convenient spot. If situated near a village, as it should be, the land may assume the value of accommodation land, and should of course be paid for accordingly. On the estate of the Right Hon. the Earl de Grey, in Bedfordshire, with which I am connected as agent, the rents vary from 32s. to 72s. per acre (or from 8s. to 18s. per rood), including all rates and taxes, and the gates, fences, ditches, and watercourses are kept and maintained for them, so that they have nothing to pay but the rent. Of course, many of those rents are higher than are paid by the farmers; but, as I before observed, they are many of them accommodation lands, and would readily let at the same prices to others. It is to me a matter of peculiar gratification to be able to testify to the punctuality with which those rents are paid. Including a few market-gardeners, there are on his lordship's rent-roll, in Bedfordshire, some 750 tenants. The collection occupies five days, and it rarely happens that there are any arrears. Now and then a little time is asked for, but very seldom, and then not given unless some sufficient reason, such as illness, or some other visitation, is pleaded. Below is a tabular statement, showing the acreage and the number of allotment tenants in a few of the parishes where the principal portion of the Wrest estates are situate.

Parish.	Population per Census of 1851.	Area of Parishes.	Number of Allotments.	Acreage of Allotment Land.	Annual Average of Five Years' Parochial Rates to Lady Day.		Parochial Rates for the Years		Parochial Rates in	
					1858.	1848.	1838.	1828.	1833.	1835.
		Acres.		Acres.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.
Silsoe...........	755	2067	78	24	2 10	2 3	2 6	7 5	5 6	3 3
Clophill...........	1186	2317	180	55	4 4	4 0	4 9	7 4	6 9	3 4
Flitton	656	1020	163	140	5 2	4 10	4 0	13 0	9 0	6 0
Pulloxhill.........	688	1584	131	51	3 2	3 6	3 8	11 0	12 0	6 0
Upper Gravenhurst..	357	895	66	21	4 4	4 3	4 10	7 9	5 6	3 2
Lower Gravenhurst..	58	757			2 0	2 1	2 10	2 0	2 0	1 0
					In the £ upon rateable value.					

Many of those, especially in the parishes of Clophill, Pulloxhill, and Flitton, which are what are termed "open parishes," *i. e.*, parishes where the cottages belong to several proprietors, have no ground whatever belonging to their dwellings. Hence it may be easily conceived what an advantage an allotment must be to them. Indeed, so anxious are they for it, that whenever a vacancy occurs, numerous applications are sure to pour in. No restriction as to cultivation is imposed, except such as are common to the farmer. Some people have an objection to cottagers being allowed to grow wheat, but I cannot say that I have ever found any inconvenience to have arisen from it. I see no reason whatever why such a restriction should be imposed; for a crop of wheat is as much a change to the soil as any other crop, and at times no doubt as profitable; while the straw comes for litter for the pig, and returns to the ground in the shape of manure. It is not found that the privilege is abused by excess of cropping; and therefore the practice has not been prohibited. In every parish on Lord de Grey's estate, where there are allotments, a barn is provided for the use of these tenants alone, for the purpose of thrashing, &c., and they generally agree pretty well among themselves, so that it is seldom necessary to interfere with their arrangements as to its use. The early promoters of the system seem to have been very much prompted to it by a pressure of the poor-rates. It was a very general impression for a few years before the passing of the Poor Law Amendment Act, in 1834, and indeed for some time subsequently, that great relief would be given to the rate-payers by the introduction of allotments; but I have not been able to learn that such was, or has been, the case to a very great extent. That it may have, and has had, a favourable effect in that direction I firmly believe, but I would not overrate it. I would here notice a curious circumstance in connection with this part of the subject, which occurred in a parish with which I am acquainted. It contains about 650 inhabitants, nearly all of whom would be engaged in the cultivation of the soil; and in consequence of so many labourers being out of employ, the poor-rates at one time amounted to nearly 16s. in the pound. In this fearful state of things the largest occupier gave up his farm, saying he could manage to pay his rent, but that the rates would ruin him. A considerable portion of his occupation was then let out to the labourers in parcels, varying from one to five and ten acres each. In a few years the rates were considerably reduced; but whether this improved state of things was to be traced to the division of the land as described, or to the operation of the new poor law, is a point which is yet open to speculation; for both causes, as well as one or two others of a local nature, were in operation at the same time. My own conviction is that to the legislative enactment the credit principally belongs. The original allottees were allowed to remain in possession of their land till they were removed by death, or became incapable of managing it; but it was not considered good policy to continue this system; but rather, when one of the little holdings became vacant, to divide it into allotments of a rood each, thus affording land upon a sounder principle, and providing for the necessities of greater numbers. The rates are now about the same as in the adjoining parishes similarly situated. There may be a difference of opinion as to whether it be more desirable that each man should have a garden of sufficient size for his wants; or whether a piece of ground should be set apart for the whole village, in the shape of an allotment. Now we know, in many parishes, the utter impossibility of getting garden-ground attached to every cottage; and therefore, as a rule, that plan could not be relied upon; and even if it could be, the latter scheme offers advantages peculiarly its own. They are, first, that a spirit of emulation is excited when all are brought into a kind of friendly competition, as is the case in an allotment field. Labourers are quick to discern successful cultivation, and to trace its causes. If one man succeeds beyond the rest in raising any particular crop, it will be sure to be noticed, and the reason of it inquired into, and his system most probably adopted. Every man has the advantage of the experience of the whole field, and in general benefits by it; whereas in a garden there are not those opportunities. How frequently does one see a garden overrun with weeds, overgrown with trees, bushes, and fences, absolutely excluding sun and air, and producing next to nothing to the cultivator! In an open field-allotment, the sun and air are freely admitted; the land is more easily kept clean, and the state of cultivation patent to all the neighbourhood. I believe example has a strong influence in promoting good and clean cultivation among all classes of occupiers. With a view to encourage it amongst the allotment tenants of the district, a society, called the "Silsoe and Ampthill Labourers' Friend Society," was established about seventeen years ago. It offers several prizes annually for competition, and great interest is excited among the exhibitors. This society is under the patronage of Earl de Grey, and has Lord Wensleydale as president; while the stewards consist entirely of tenant farmers, who thus evince their sense of its usefulness. The subscribers comprise the clergy and gentry of the neighbourhood, and the exhibition is invariably fully attended. In fact, all classes unite to promote the object it has in view; and the result is an exhibition of fruits, vegetables, &c., that would surprise any one who had never before witnessed it. I believe this to be a most useful institution, and where allotments prevail to any extent I would strongly recommend the establishment of similar associations. Some persons have an objection to prizes being offered for length of service; but I cannot conceive that any opposition can be offered to the encouragement of good cultivation, whether on a small scale or on a large one. We all know it is the practice of some large proprietors to offer premiums to be competed for by the tenants on their estates—in some counties such premiums are given by the agricultural societies. In either instance the same effect is produced—honourable competition among the larger occupiers. Why, then, should not the smaller ones have similar inducements held out to them? Upon the latter part of my subject I have little to say. The chief abuse of the system (to use the word on the card) consists in giving the labourer more land than he can manage consistently with his usual occupation. Every scheme must be kept within due bounds—every system must have a limit. To extend the allotment system beyond its legitimate bounds would have the effect of completely changing its character, and turning that which was intended to be an auxiliary into a leading pursuit.

Mr. Bennett (of Cambridge) said it would have been far more agreeable to him to have sat and heard the sentiments of his friends around him upon this interesting subject rather than obtrude his own at so early a part of the discussion. He would not, however, shrink from taking his part on a subject in which he had for many years of his life felt a very lively interest. First of all, he must beg permission to tender his best thanks to Mr. Trethewy for having called attention to a subject of great importance to the labouring classes, and more or less so to the community at large. He felt the obligation the greater to that gentleman, because he very properly directed attention to the *abuses* as well as the *usefulness* of the cottage allotment system. (Cheers). For himself he thought he could more usefully follow in the discussion, by giving somewhat greater prominence to what may be regarded as some of the leading abuses of this otherwise very beneficial *practice*. First and foremost of its evils was the allotting unsuitable land, and often at a very inconvenient distance from the dwellings of the labourers. (Cheers). To allot from a rood to half an acre of poor clay land to a labourer, and that sometimes from half-a-mile to a mile from his cottage, so far from benefiting him, they did him a great disservice. In such cases they added much to the toil of the poor body, and harassed his mind without the remotest chance of doing him good. I am aware (continued Mr. B.) that good strong land will often yield a greater crop than a lighter soil; but in that case it must first be well-drained; and most of all as contiguous to his home as possible: otherwise the result can only be great improvement to the land, and increased poverty and discomfiture to the labourer. (Cheers). The rent the labourer pays must not be left out of consideration. He had known land let out to labourers at such prices as precluded all hope of the occupier deriving the least profit—poor wretched glebe land, for instance, let at double its value, and irrespective of its distance from the dwellings of the labourers. In such cases there was no wonder that the result should be anything than beneficial. The quantity of land granted was also sometimes more than could be well managed, offering a temptation to the labourer to apply himself at his allotment when he should be rendering service to his master. Those were some among the many abuses of the allotment system; and he thought Mr. Trethewy would agree with him (cries of Hear, hear, from that gentleman). In the teeth of all those abuses, which in many cases had been but too manifest, he (Mr. Bennett) was fully of opinion that the good results to the labourers, where skilfully managed, far more than counterbalanced all the evils incident thereto. In some parts of the kingdom they were justly regarded as a great boon to the labourer, making a nice addition to his wages, and greatly adding to his comfort; and perhaps nowhere more so than on the estate of the Right Hon. Earl de Grey, so skilfully watched over as it was by the gentleman who had so ably brought this subject before the attention of the club (cheers). That there had been great improvement in the condition of the British labourer within the last quarter of a century must be evident to every observant agriculturist. That the establishment of cottage allotments, however, must not have the entire credit of this improvement he was free to admit. The improved poor-laws had done even more. On the old system (which offered a sort of bounty on improvidence), they could do nothing effectively in that way. They regarded the overseer as their national parent, and flew to him on every emergency, and often from one year's end to the other. But recently the law had taught a man that his first dependence must be on his own exertions, and on the overseer only when all other means fail. Good cottage allotments were now properly prized and sought after, and had already very materially aided the honest and industrious labourer; and if wisely and prudently managed, were destined to be of far higher service to the entire rural population: for it was a fact patent to all, that if a man possessed but the smallest portion of property, so that he had something he could call his own, they gave him a sort of stake, and attached him more or less to the common weal of his country. He (Mr. Bennett) thought, therefore, that every true patriot should lend his willing aid to carry out in the most efficient manner this highly beneficial system (cheers).

Mr. Alderman Mechi entirely concurred in the admiration expressed by Mr. Bennett of the manner in which Mr. Trethewy had introduced the subject. He, for one, went very much with that gentleman in his conclusions; but there were some points on which he differed from him. He thought that every farm should, if possible, have a sufficient number of cottages for the labourers employed upon it (Hear, hear). He was also of opinion that the cottages should invariably have attached to them such a portion of land as the labourer could conveniently cultivate (Hear, hear). He agreed with Mr. Trethewy that an eighth of an acre, or a little more, was generally quite enough. He did not concur with him, however, that a cottage garden so situated would not possess the same advantages of comparison as an allotment, because there would be other cottages and other cottage-gardens on the same property, or in the neighbourhood. They all knew that labourers mixed together, and they might just as easily observe the difference between good fencing and trimming and bad fencing and trimming in their gardens as the farmers could make such comparisons on their farms; that might be done just as well from cottage to cottage, and from garden to garden, as from one allotment to another. The aggregation of cottages without gardens was a disgrace to past management. The horrid system of getting rid of labourers by driving them to another parish had placed such persons to a very great extent at the mercy of itinerant builders, who raise dwellings for them as close together as possible, and took care that there was very little land attached to them (Hear, hear). He hoped that a better feeling was now abroad among both landlords and tenants in reference to this question; he hoped they had now begun to feel that it was as necessary to have labourers near their work as it was to have horses near their work. (Hear, hear.) In his own neighbourhood, he might remark in passing, a practical farmer was now building three cottages near his farm, for the occupation of some of his labourers. If a labouring man had to walk two or three miles in the morning before he could begin his work, and two or three miles on his way home when the work was over, his labour must be proportionately less valuable to his employer. It was clear that you could only have a certain amount of physical power out of a man, as out of a horse, and that was a truth which should always be borne in mind in reference to the situation of the dwellings of agricultural labourers. (Hear, hear.) He did not agree with Mr. Bennett as to clay land being so disadvantageous to those who chose to cultivate it. (Laughter.) On the contrary, he had great faith in an honest clay (laughter); nor did he see how the use of clay soils was to be avoided in purely clay districts. Such land should indeed be well drained previously to being let to the cottager. Was that generally done? He knew it was hardly ever done. (Hear, hear.) When once clay lands had been effectually drained, and when once the system of burning, which was very profitable, had been carried out, the soil was often found to be more useful and enduring than soils of a different description. He hoped there would ere long be some alteration of the poor law, which would tend to stimulate the building of cottages in the immediate vicinity of farms. He knew that was not a question which they were met to discuss that evening, but he could not refrain from remarking incidentally, that he trusted there would not much longer be any inducement to the farmer and the landlord to get rid of labourers by pushing them, as it were, into adjoining parishes. (Hear, hear.)

Mr. B. P. Shearer (Bishop's Waltham) wished to ask Mr. Trethewy, whether it were customary on the estates to which he had alluded to give allotments to all persons who asked for them.

Mr. H. Trethewy said, he had a list of applicants, in which every application was entered; and whenever a vacancy occurred he selected the person whom he considered most suitable.

Mr. Mechi supposed that even if applicants were small tradesmen their application was not rejected on account of their calling.

Mr. Trethewy: No.

Mr. J. A. Williams (Baydon, Hungerford), said, there could be no doubt that the new poor law had done much towards placing the agricultural labourer in the improved and improving position he now occupied; and he hoped that in ten years the labourer would be in a better position than he was at present. The circumstance that he was now thrown more on his own resources than he was before the alteration of the poor law made it the more incumbent on their part to aid and assist him in his endeavours to improve his own position, and to make himself comparatively independent; and by letting him have the raw material to produce some of the necessaries of life, in addition to what he obtained in his master's service, they placed him on a footing which enabled him to rear his children honestly and respectably, and made both him and them better members of society than such persons generally were twenty or thirty years ago. (Hear, hear.) The subject on the card had, in his opinion, a very close connection with the welfare of the agricultural labourer. He agreed with Mr. Trethewey that a rood of land was the very outside quantity that either landowners or occupiers should ever think of allowing labourers to cultivate. A rood would require all the spare time beyond what the labourer ought to give to the service of his master, in return for the wages he received. (Hear, hear.) Masters, of course, expected an honest day's labour for a day's pay; and if the allotment in any way interfered with the day's labour for the master, it must be classed under the latter part of Mr. Trethewy's subject — "the abuses of the system." (Hear, hear.) He believed, however, that a rood was not more than a labourer could properly and conveniently cultivate; that quantity would occupy his time usefully. During the long evenings of autumn, he would be engaged in breaking up the soil and securing his produce; in the spring he would be occupied in cultivation; and in the summer in cleaning his land. And all this would tend to keep him from the public-house; while, by this opportunity thus afforded to him of working up the raw material, he might make a great addition to the comforts of his household, and secure for it many comforts which could not otherwise be obtained (Hear, hear). He knew that many persons had objected to the production of wheat on the ground, that it might be injurious to the farmer: it should, however, be remembered that there were many instances in which the labourer could not employ a rood of land profitably unless he was permitted to cultivate a portion of it with cereal crops (Hear, hear). To say that he should produce nothing but potatoes on a rood of land was to say, in effect, that he should follow the rotten system which prevailed in Ireland until a few years ago. If he were allowed to cultivate one-third with cereal crops, with good spade cultivation, and the refuse of the pigsty as manure, he would be enabled to manage that proportion profitably, and, with the aid of gleaning, would secure comforts to the poor man's family which they themselves, perhaps, could hardly conceive. It was of course possible that the labourer might, by the production of such an article as wheat, be tempted to turn rogue, and to increase his stock by robbing his employer; but he did not think they ought to stand in the way of the agricultural labourer by supposing that he must of necessity be a rogue (Hear, hear). If they took a fair and practical view of the question, the objection that the growth of cereal crops must be injurious to the employer would vanish. One thing that would add greatly to the comforts of the poor man's family was the possession of a fat pig. He felt quite certain that a man of industry and economy might, with a rood of land, fat two pigs. Every time the pot was boiled there was something that would aid in the subsistence of the pig. It was possible, therefore, for him to fat two pigs, and the sale of one would more than pay his rent, while he might keep the other for the consumption of his own family. This was a practical way of viewing the question. Many years ago he himself allotted seven acres of a farm which he occupied among labourers: that land laboured under two disadvantages, which had been condemned by Mr. Bennett and Mr. Mechi. In the first place it was strong, clay soil, and undrained; and in the second place, some of it, instead of being close to the village where the labourers resided, was about half a mile from it. That the distance, however, in this case was no obstacle in the eyes of the poor man, was evident from the fact that there was as great a demand for the allotments half a mile from the village as for those which were close to it. Of course, labourers generally would give the preference to land which was near their dwellings; but it should be remembered that there must be reciprocity in all such matters: the party who lets an allotment must let it partly for his own benefit as well as for the benefit of the occupier, and in all cases the allotment system must be self-supporting if it was to continue to exist. Whenever there was an allotment vacant half-a-mile from the village there were plenty of applicants for it, and that appeared to him to show conclusively that the distance was not material. At all events, it was better that the labourer should have land half-a-mile or even a mile distant from his dwelling, than that he should have none at all (Hear, hear), and he was convinced that if the allotment system were well carried out, it would do much to improve the condition and elevate the character of the labouring population. He had only one more observation to make. He recollected hearing Mr. Baker, whose absence on that occasion he much regretted, speak some years ago of one of the abuses of the allotment system—namely, that in some cases the poor employed the Sabbath in working on their land. That was indeed one of the greatest abuses that he could conceive, and he thought that wherever it existed the owner of the soil should put his veto on such a practice, and compel the labourers to abstain from cultivation on the Sabbath.

Mr. **Mechi** thought Mr. Williams was mistaken in supposing that labourers having a rood of land would be able to fat two pigs with their own produce. In his (Mr. Mechi's) part of the country they generally bought two or three sacks of barley-meal for each pig.

Mr. **Williams** said he was of course aware that labourers could not fatten a pig on nothing; but he meant to say, that when a man had forty poles of land in his occupation, they must take into account the produce of his land, and consider how far the refuse of his cottage might, in his improved circumstances, be made use of in the cultivation of his land. He did not mean to say that it was always advantageous to grow wheat. After cropping his land for two or three years with wheat, the labourer might have recourse to barley, and he believed that was done with advantage on his own allotments.

Dr. **Ellis** (Sudbrook Park, Richmond) thought that there was nothing more graceful to be found in the history of agriculture than the assembling of a number of owners and occupiers of the soil to consider how they might improve the condition of labourers. Half a century ago it was supposed that all farmers cared about, as regarded those whom they employed, was to get as much out of them as possible. This could no longer be imagined, when owners and occupiers met together and devoted their time and thoughts to the promotion of the interests of agricultural labourers. Such discussions as this must tend to make labourers feel an additional interest in those who were so anxious about their welfare (Hear, hear). He had watched the allotment system ever since it came into operation with great interest, and he was convinced that it was attended with very good results, on the whole, and with very little evil. He had seen it carried out on land which had not been considered worth enclosing: he had seen that land brought into a state of improvement far superior to that which it could have attained under a broader system of cultivation, and he had seen people thus raised from a condition of degradation, rags, and misery, to one of sobriety, comfort, and morality. This improvement was owing, he thought, in a great degree, to the mere fact of their being employed; for it was an universal truth, which they had probably all learnt in their childhood, that "Satan finds some mischief still for idle hands to do." If they wanted to keep a labouring man out of mischief, they must endeavour to keep him constantly employed (Hear, hear). Indeed, whatever grade of society they examined, it would generally be found that the best and most useful members of society were persons who were nearly always occupied in a profitable manner. It was a mistake to suppose that the strength which a labouring man gave to his ordinary day's labour for hire was all that he could employ for his own advantage. There were great fundamental errors with respect to physical strength. Strength was to be obtained from rest and repose, not by filling the body with stimulants. When the labouring man had returned from his day's labour for his employer, if he took a wholesome meal, provided he were in good health, he would in about half an hour renovate his strength, and be fit for work again, although he had been occupied all day: he was now speaking of course of the fair working-day. The man might go to work for an hour and a-half, or two hours, according to the time of year, and if he produced more in his garden than was required for the wants of the household, his wife might take the surplus to market, and thus procure the means of buying barley-meal, and saving part of the wages for the benefit of the family. There were, it must be admitted, two or three very serious evils connected with the allotment system. One evil was, that some proprietors charged too much rent for land let out in allotments. He had really felt quite ashamed sometimes, on asking labouring people how much they paid, when he heard their reply. He had not, indeed, told them it was too much, not wishing to do anything to create bad feelings in the community; but he made the inquiry because he felt deeply interested in what so much concerned the welfare of the labouring classes. He had heard of 18d. a pole being charged for what was in fact nothing scarcely but common white sand: it formed part of land which had never been enclosed.

Mr. **Mechi**: That is £12 an acre.

Dr. **Ellis** said he could mention a place where that rent had been charged. He hoped, for the sake of decency and justice, that it was not done generally. Whether, however, it were done only in a few instances, or in many, they must all feel that it was a very serious matter to charge too high a rent for land cultivated by the labourer (Hear, hear). Attempts on the part of clergymen or laymen to get an enormous rent for land was an enormous evil. Another evil was the allowing persons to have too much land. He had seen instances in which shoemakers, tailors, &c., had neglected their regular work in consequence of having to cultivate a large garden; and the result was that they suffered both ways—they lost their customers, and they were unable to pay their rent. Another and a most grievous evil was, that in many parishes—he believed in all the parishes in his own district—a considerable number of persons cultivated their allotments on Sunday. He had been exceedingly pained at witnessing this desecration. Notwithstanding his opinion as to the ability of labourers generally to work for an hour or two for themselves in the evening, he thought nothing could be more desirable for the human frame than a Sabbath of quiet, and of perfect freedom from physical labour. "Godliness" was "profitable for all things," and nothing was more beneficial to man than the Sabbath day's rest: that rest was essential in order that the labour of the six days might be carried on successfully. He would sum up his remarks on this point by suggesting that, in letting allotments, it should always be made a condition that no labour should be performed on Sunday, and that whoever was found spending any portion of that day in working on his land should forfeit his allotment.

Mr. Mechi: What county is yours?

Dr. Ellis: Surrey.

Mr. Mechi: What you speak of is never done in Essex (Hear, hear).

Dr. Ellis said a question might be raised with regard to the impossibility in some districts of obtaining allotments, whether there should be an Act of Parliament to meet such cases, or whether they should trust to the diffusion of a feeling in the public mind which would render land always available for this purpose. There were parishes in which landowners would not allow their land to be "cut about," as they expressed it, and there were other obstacles of the same kind. He considered it a great pity that the labourer did not in all cases live in some degree by the cultivation of the soil; and he thought it very desirable that such persons should be able to feel that they had a piece of land which was their own—at all events as tenants-at-will—for the occupation of their spare hours in labour.

Mr. S. Sidney (Peckham) said, being a close observer of the allotment system, though not a farmer, he had listened to the remarks of gentlemen who were practically engaged in agriculture with deep interest. The allotment question had undoubtedly made very great progress since it was first agitated by the poet Southey, and he was glad that evening to find gentlemen representing different parts of the country concurring in a few leading principles. In the first place, all the gentlemen who had spoken were agreed that it was a good thing for the labourer to have a piece of land where he might amuse himself in the evening, and where he might invest the spare capital and labour of himself and his family; and secondly, that it was important that this land should be as near as possible to the labourer's dwelling. Although Mr. Trethewy thought that the labourer might in some cases do very well with land at a distance, he evidently regarded such a state of things as exceptional, and would prefer the rood of land being always attached to the cottage (Hear, hear). No farmer would like his farm to be a mile from his own residence: and it was exceedingly desirable that as little as possible of the labourer's time and strength should be wasted in going to and from the allotment. He could not help remarking that, however they might pity them, they had no right to speak harshly of those labourers who frequented places of amusement. They all frequented such places themselves, most of them having a great many sources of amusement; and it should be borne in mind that it was only within the last few years that any earnest endeavours had been made to provide labourers with substitutes for the public-house (Hear, hear). He was glad to see a general agreement as to the limitation of the quantity of land to be cultivated by the labourers. It was clear that no man could follow two pursuits with advantage. No man could labour much for himself and labour for hire at the same time. If he had the spirit and ability which raised him above labour for hire, he would naturally seek some other employment; but such cases were rare, and care should always be taken that the occupations of farmer and labourer did not interfere with each other. Another point on which he was glad to find general agreement was this—that the working of the allotment system should not be chained down by a number of regulations (Hear, hear). In the original plans of allotment, the labourer was treated altogether like a child. Just as a child was dressed and washed, and told where he might go, and what he might do; so the agricultural labourer was formerly treated; in a manner different from any other labourer, and not allowed to think for himself. He was very glad to hear Mr. Trethewy, and others who followed him, advocating the leaving the labourer at liberty to crop as he pleased. The labourer must, like others, be allowed to gain experience and acquire intelligence by his own efforts. With regard to the observations of Dr. Ellis and others, as to the working of labourers on Sunday, he thought it would generally be found that labourers worked on Sunday where they had before them the example of the rich playing on Sunday. Dr. Ellis resided, he believed, in the neighbourhood of Richmond, and a great many rich people spent a portion of their time occasionally on Sunday in dining at the Star and Garter, and in drinking, and other pursuits which were certainly not of a pious character (Hear, hear). He had observed that in every parish labourers were very much influenced by the example of those who were above them in social position. There was one part of Mr. Trethewy's excellent introduction which was especially valuable; he referred to the table, giving a statistical epitome of the progress made during the last few years. He agreed with Mr. Trethewy that the improvement which had taken place in the condition of the labouring poor was attributable in a great degree to the operation of the new poor-law. Not that the poor-law had done anything directly for the labourer, but it had placed him in a better position for doing something to improve his own condition. Moreover, if they looked at the legislation of the last ten years they would find the price of the labourer's tea and sugar and other leading articles of food and wearing apparel materially reduced in price; his condition had been improved partly by the reduction made in the cost of necessaries, partly through the increased demand which had arisen for his labour on public works, and partly through emigration. He thought that when the observations of preceding speakers were circulated, as they would be, throughout the country, they could not fail to produce important effects; and those gentlemen who sometimes tried in eloquent speeches to set class against class, and more especially to set the agricultural labourers against their employers, would find that in discussions like these the best answer to their assertions.

Dr. **Ellis** said as regarded the parishes of Ham and Petersham, he was happy to be able to state that it was not the custom of the wealthier inhabitants of that district to spend Sunday at such places as the Star and Garter; they went to church or some other place of worship, and it was London gentlemen who went to Richmond to break the Sabbath (Hear, hear).

Mr. W. **Gray** (Courteen Hall, Northampton) said he had witnessed the satisfactory working of the allotment system in a parish in Huntingdonshire, where he lived for some years. In referring to that parish, it was necessary for him to go back for a few years. No doubt many in that room well recollected the agricultural disturbances, as they were called, of 1830. At that period the burning of machines and corn-stacks was the order of the day; and after the law of the land had quelled the disorder, it was considered necessary to do something to prevent a recurrence of it. Accordingly a meeting was convened, and it was there suggested that the allotment system might do something towards correcting what was wrong. The parish was at that time rather notorious for badly-conducted labourers, and it was proverbially said in Huntingdonshire of any bad district, "It is as bad as the parish of Alconbury." The late Bishop of Durham, Dr. Maltby, happening to have some land contiguous to the parish, he offered it to the churchwardens, to be let out in allotments; and it was offered at the rate of 35s. per acre free from parochial charges. The applications were very numerous, and there was some difficulty in making a selection. The system soon got into working order; the men seemed pleased with their occupations, and it was delightful to observe what industry the system seemed to bring into the parish. He had heard strangers ask, "What are all those children doing with their wheelbarrows?" There you would see twenty little children picking up manure, and it was not merely the value of the manure that was to be considered in such a case—the children were acquiring industrious habits. (Hear, hear). Well, the thing worked well, and there was a great improvement among the labouring population. He did not mean to say that that was the only means of regenerating the parish: the poor-law of 1834 gave the finishing stroke. He himself left the parish, he believed, in 1835; but he kept up a connection with it, and in visiting the parish he was very much pleased to witness the improvement which had taken place amongst the agricultural labourers. His having twenty poles of land set apart for his cultivation had taught the labourer that there was some one who cared for him: it had raised him in the scale of ambition; and it had given him ideas which he never had before. There you saw the man and his wife well dressed, and attending church with their children. Moreover, the children were sent to school to a far greater extent than was the case previously. There was hardly anything, indeed, which had more struck him through life than this—that when once you had improved the condition of the labouring-man you found him desirous of having his children educated. (Hear, hear). Now, what was the result of all this? Why, he had no hesitation in saying that at present the parish of Alconbury, the population of which was from twelve to fourteen hundred, would bear comparison with most other parishes of the same kind. The men went round the district sweeping away the prizes for hedge-cutting, draining, and so on; and there could be no better proof of their usefulness as labourers. He would now come a little nearer home. The parish in which he resided at present all belonged to one proprietor. There the allotment system had been carried out also. The labourers paid 6d. a pole for land which was honestly worth the money (they paid no rates), and which was all fenced in and drained. Collecting the rents, as he did, once a year, he had never had sixpence left unpaid. At Michaelmas he went round the allotments, and he saw one pig at least—in some cases there were two—in every sty. It was, he might remark, very soon discovered that if you gave a man an allotment you must also give him a pig-sty, and hence pig-sties were attached to all the allotments. He did not consider it essential that there should be white crops on allotments. In his own parish, indeed, labourers had no conveniences for growing such crops. The practice was to take one-third potatoes, one-third mangel wurzel, and one-third beans. The beans and the mangel fed the pig, and the potatoes the labourer and his family ate with the pig. He had always been an advocate for the allotment system; and from what he had seen of its working, he was convinced they could do nothing more likely to improve the agricultural labourer than the giving him a small quantity of land to cultivate. He thought twenty poles were sufficient. He had always been on his guard against letting the labourer have too much land. If they did that, they turned a good labourer into a bad farmer. When the labouring man had one or two acres of land, he became powerless. He would mention a case which would serve to illustrate this. A noble duke, who was a very charitable man, was told by some labourers on his estate that, if he would let them each have an acre of land, they could live upon it. The duke yielded to their request; but what was the result? Why, entire failure. One day he (Mr. Gray) went to one of the men on his allotment, and said to him, what was the fact, "Why, my man, you seem to have your land in very poor condition." "Yes," was his reply, "I'm beat sir—I can't do it" (Hear, hear). They all knew how much profit an acre of land would yield; and if a man were entirely dependent on it, the result could not be satisfactory.

Mr. R. T. Howell (Llanelly, Carmarthenshire) wished to bear testimony to the benefit which had been conferred on the labouring population of the district in which he resided, by that which had been this evening termed the allotment system. He lived in a district which was partly agricultural, but mainly manufacturing; and he believed that nothing tended so much to the improvement of the condition and comfort of the working people there, as the system of allotting small portions of land for cultivation. In that neighbourhood it was customary to let land on long leases for cottage-building; but the quantity of garden-ground attached was usually very small; and, not satisfied with this, the labourers obtained from agriculturists and landowners in the neighbourhood an additional quantity—generally about 15 or 20 perches—which they cultivated in the manner which had been so ably described this evening by Mr. Trethewy. There were few only who grew wheat, barley, or other cereal crops, the general practice being to use the land for growing potatoes and vegetables. He knew of nothing which contributed so much to the happiness, comfort, and prosperity of the labouring community as garden cultivation. As regarded rent, his own experience was, that labourers looked not so much to the price of the land as to fixity of tenure. It was a common practice with farmers in his district to let out land in small allotments for a year, and to resume the occupation of it after it had been benefited by the manure which had been carted at the expense of the labourer, who would thus derive only one crop. He felt sure that men would rather pay £4, or even £6, per acre, with some certainty of longer tenure, than 20s., or even 10s., with the prospect of the farmer resuming the occupation of the land after it had been improved by cultivation.

Mr. E. B. Acton was very glad that the tenant-farmer was coming forward so much to assist the labourer. In reading Mr. Caird's useful book some time ago, he was very much struck with the fact there stated that the average amount of wages paid to agricultural labourers in this country was only 8s. 6d. a week. He need scarcely say that it was impossible for the labourer to get two pigs a year out of such wages. He was very glad that Lord de Grey had set an example to the country by reducing the rent paid for allotments. The rent now paid was, he understood, 72s. per acre.

Mr. Trethewy: From 32s. to 72s.

Mr. Acton continued: Some years ago the rent paid in many cases in the west of England was about £8 an acre. Mr. Williams would bear him out in that statement.

Mr. Williams: No.

Mr. Acton said, At all events, when the question was debated there some years ago, it was admitted that £8 an acre was charged; and he was very glad, therefore, to hear what had been done. Such employment as that afforded by the allotment system although admirably adapted to ameliorate the condition of the agricultural labourer, still he thought might be better carried out by industrial associations or friendly societies than by private persons, so as to strengthen his independent and industrious feeling.

Mr. T. Stag (of Grafton, Wilts) said, some allusion having been made to the price of land let out in allotments in the West of England, he wished to say a few words on that subject. He happened to be a tenant of one of the largest landed proprietors in that part of the country—the Marquis of Aylesbury; and he knew that in his own parish land was let to labourers at less, rather than more, than he himself paid. Some of the best land on the Marquis's estate was let at 10s. a rood. Mr. Williams had spoken of the fatting of two pigs on a quarter of an acre of land. He should like to know how that was done. (Hear, hear).

Mr. J. A. Williams wished to say one or two words in explanation. First, as regarded price, he would observe that he himself charged 15s. for a rood of land, taking the whole of the liabilities upon himself. He occasionally met with a defaulter. The system must, as he had before remarked, be self-supporting; but he was not aware of a single instance in the West of England in which the rent exceeded £4 an acre. As to the fatting of two pigs, he did not mean to say that that was the rule; but, as their friend Mr. Mechi had made one of the best farms in Essex out of one of the worst, so the labourer might, partly from his own resources, and partly from other resources, be enabled to keep two pigs instead of one. Of this he was quite certain, that the labourer who used his best endeavours to fat two pigs instead of one would be better able to fat two than others. The system of high farming might, he believed, be carried out effectually on a small occupation, as it had been by Mr. Mechi, through the expenditure of a large sum on his farm.

Mr. Howell wished to make one additional observation. In his district labourers' houses had been built too much in rows and blocks. He advocated the building of detached houses, giving to each man his own separate allotment immediately contiguous to his house, especially in rural villages.

Mr. E. Little (Chippenham) said there were near 700 allotments on the estates with which he was connected, and in no instance did the rent exceed £2 an acre. The system worked well in his part of the country wherever it had been adopted. One valuable rule which was carried out in reference to these allotments was, that the doing of any labour on Sunday excluded the occupier from further occupation (Hear, hear). That was one of the conditions on which the land was held, and it was never violated (Hear, hear).

Mr. Mechi: The £2 includes all charges?

Mr. Little: Yes.

The Chairman said he listened very attentively to the able paper read by Mr. Trethewy—a paper comprising almost everything that could be said in favour of the allotment system (Hear, hear). He thought the carrying out of the allotment system depended in a very great degree upon landlords. Where cottages were situated on farms the labourer generally had an opportunity of increasing the quantity of garden ground if it were not sufficient; and the farmer, of course, took care not to let it be augmented beyond what was required for the necessities of the family. But where the labourers' cottages were situated in a village some distance from the farm, it rested solely with the proprietor of the soil to provide land for the convenience of those who had not a sufficient quantity attached to their dwellings. He happened to receive rent from about 70 labouring tenants; the rent charged had never exceeded 6d. a pole, the land being close to the village, some of the best land in the district, and being exempt from poor-rates and all other charges. The rents were paid regularly and cheerfully; he did not remember a single defaulter. Speaking generally, he might say that the object of all present was, he presumed, to make the cottage-home a scene of happiness, comfort, and contentment, and to give labourers an interest in their abodes; and he believed the labourer felt as much pleasure in walking up and down his allotment as they felt in walking round their farms (cheers).

Mr. TRETHEWY having briefly replied, on the motion of Mr. Little, seconded by Mr. Bennett, thanks were voted to him for the able manner in which he introduced the subject.

On the motion of Mr. J. A. Williams, thanks were also accorded to the Chairman; and with this acknowledgment the proceedings terminated.

INAUGURAL ADDRESS FROM THE CHAIR OF AGRICULTURE, QUEEN'S COLLEGE, BIRMINGHAM.

DELIVERED BY PROFESSOR TANNER, ON NOVEMBER 8TH, 1858.

My present duty, in delivering before you an inaugural address on the commencement of my duties in this College, is a source at once of pleasure and anxiety. *Of pleasure,* because I cannot but feel gratified that I have been so highly honoured in being selected by the Council of Queen's College to fill the newly-established Chair of Agriculture and Rural Economy; *at the same time* this responsibility produces a deep anxiety on my mind for the right performance of the duties of my position. Your presence here to-day assures me that you take a warm interest in the progress of agriculture, and especially in the step so recently taken by the establishment of a Professorship of Agriculture and Rural Economy in Queen's College. I therefore cast aside that hesitation which I might otherwise feel, and, throwing myself upon your indulgent consideration, shall proceed to glance at some of those reasons which induced the Council of Queen's College to take this important step, and view the beneficial results which we may anticipate therefrom.

The position of agriculture is at the present time somewhat singular. For some years past a conflict has been taking place amongst those connected with this important department of national industry. The contest has been severe, and prosecuted with much zeal on both sides; whilst jealousy has been too dominant, and added a bitterness to the strife. Happily, the conflict is over: we hear no more now of the opposing claims of Practice and Science; but all are now surprised at the past warfare, and with hearty good fellowship they form a noble band desirous of advancing the interests of agriculture, thereby contributing to the welfare of the proprietors and occupiers of the land as well as to the prosperity of the country at large, whose interest is so closely identified with the prosperity of those connected with landed property. We may, however, review the contest with advantage, and draw therefrom a caution which will influence us for the future.

As in the majority of cases, when persons range themselves into distinct parties, both are apt to fall into error, whilst truth is generally found amongst the more moderate opinions. This is particularly observable in the history of agriculture. We observe that certain customs and practices have been established in various parts without its being known why or wherefore they have been adopted. They are persisted in because they are attended with some success; and this is certainly a very strong argument in their favour. The advocates of science imagined that they detected many errors in various farm practices, and no doubt they were to a certain extent correct in recognizing those errors; but in too many cases they fell into the opposite error, and with sweeping censure condemned the practices entirely, and proposed substitutes without considering the peculiar circumstances of the locality; consequently these substitutes were frequently unsuccessful. The men of practice refused to adopt the novel plans proposed, whilst those engaged in scientific pursuits, with too great haste, looked upon them as a stationary class opposed to all progress. It is true that, as a body, they did refuse to throw aside established practices for the new modifications; but as soon as economical results were proved, their opposition vanished.

The agriculturist may be looked upon as one who is continually inquiring of Nature; and the operations he performs upon the land are more or less successful in proportion as they are in accordance with the laws which control the operations of Nature. Thus errors have been detected by failures, whilst more correct systems have been established by success. Nature has thus taught the observant agriculturist how he may carry out his operations with success. Such knowledge is usually known as experience; and highly indeed must it be valued. Experience, therefore, is based upon truth, and cannot be despised with impunity. Few, if any, have arrived at that stage at which they can gather experience in its purest form; for, with all our care, error will creep in: and thus experience, whilst it contains much that is true and valuable, is always more or less intermixed with error, according to the discrimination of the observer in tracing results to their proper causes. If by the fan of knowledge you can winnow away the chaff of error, you may thus separate the kernel of truth in a purer form; but be guarded lest, in your zeal to separate them, you lose the precious corn of truth. It has been done before: let "Caution!" therefore, be your watchword, when you deal with local customs. It will always be my endeavour to advocate the importance of paying respect to old-established local customs. They are, I believe, invariably based upon truth, and cannot be set aside without disappointment and loss.

If the experience derived from practice is thus valuable, it may be asked, What need has the agriculturist for any other guide? If practice *alone* can teach him, wherefore should science be brought to his aid? I reply, To enable him to separate truth from error; and from his own experience, as well as that of others, to draw those principles which are applicable to his own case, and by the aid of which the productiveness of the land may be economically increased. In ancient times, the voyager toiled along the line of shore, and feared to lose sight of the land; but the magnetic needle subsequently taught him how to gain the same points by a more direct course. So, in like manner, the needle of scientific knowledge will be our guide when we lose sight of our landmarks; but, till we more fully understand the principles with which we have to deal, we must be exceedingly cautious how we venture far away from the directions of experience. Still, with the true spirit of progress, we must endeavour to use the instruction of science with *judgment*, without abusing it by *indiscretion.*

Contradiction cannot exist between the principles which science dictates, and the experience which is derived from practice. They are the same in their origin as well as in their character. The laws of nature are fixed and definite; and a knowledge of these laws constitutes what we term science: but we have already seen that experience must be traced to the operation of the same laws; consequently, as these laws are definite in their action, there cannot be any variation between the principles of science and the practice of the art. But, whilst the laws of nature are definite, it must also be remembered that they *modify* each other; and the results, consequently, vary according to the several agencies which are called into operation. Thus, as we enter the palace of Nature, the mind at first becomes confused by the apparent contrariety of action observable. Like as the untutored eye watches with surprise and wonder the rapidity and diversity of action presented by the machinery of a factory, unable to detect the elementary movements which are here combined and accelerated; so also, in the laboratory of Nature, its operations appear to the superficial observer to consist of an indefinite number of conflicting agencies acting without system or law; but knowledge dispels this opinion, for the study of the sciences reveals to us the principles which govern all creation; and thus we are enabled to trace the laws which control all physical changes, and reduce to systematic regularity those ever-recurring changes which are presented in nature.

In too many cases the suggestions of scientific men have failed from their not giving due consideration to the modifications which thus arise in practice; whereas, experience (which is derived from Nature's instruction) gives us results which are worthy of the strictest confidence. Facts thus gathered are of the greatest importance, and it is by a careful record and examination of facts that we offer to the scientific mind the best groundwork from which to establish correct theories.

Here let me draw your attention to the important difference which exists between Science and Theory. These terms are often considered synonymous, but this is very far from being correct. By the term "science" we understand a knowledge of the laws of nature; and I have already shown that science cannot contradict facts. But if with an *imperfect* knowledge of science you deduce from these facts certain opinions, and thereby establish a theory, such opinions will be more or less correct according to your knowledge and judgment; consequently the theory would be more or less erroneous as you may have regarded the several agencies which influenced the result. The principles of science and the facts of experience remain equally true and valuable, notwithstanding that an incorrect theory may have been formed. But in proportion as we become more fully acquainted with the laws and operations of Nature, so shall we be more competent to combine our opinions and form correct theories. The difference, however, must always be clearly borne in mind. We may with confidence rely upon the record which Nature gives us *in facts,* and also upon the principles of science; but when we attempt to form theories upon them, we must remember that they are but individual opinions, and, however *probable,* cannot be relied upon as *certain.*

It is one of the difficulties with which all branches of science have to contend, that those who are the pioneers of discovery are too apt to form favourite theories, rather than content themselves by being *cautious observers of facts and principles.* There is scarcely a single exception in the whole range of scientific studies; for the early students have almost invariably formed theories, oftentimes of the wildest and most visionary character, which have misled them and rendered their labours comparatively useless. It has been the same with those who have devoted their attention to the science of agriculture. Many of these zealous men have thus proclaimed theories which practice has disproved, and thereby much discredit has fallen upon the cause they were most anxious to have promoted. I am happy to say that greater caution is now observable, and the most energetic promoters of the science are now co-operating in *the investigation of the functions of Nature* rather than propounding new and favourite theories. But whilst Practice cannot contradict the teachings of Science, it may, however, be opposed to Theory; but so far as this exists, so far is the theory influenced by error; on the other hand, the more correct our theories are, so in like manner will they more fully harmonize with the evidence of practice.

Such being the relation in which Science stands to Practice, it is evident that scientific knowledge is of the highest importance to those who are connected with the soil, and whose duty it is to convert the materials of our soils into forms endowed with vitality, and finally prepared for the requirements of man. Do not let me be for a moment supposed to advocate scientific knowledge alone as a sufficient preparation for the successful management of land; for I am fully persuaded that practice can alone render a person competent for such duties; but I would most emphatically express my conviction, that no one is in a position to learn farming with the greatest advantage to himself, who has not been rendered a correct observer of Nature by a knowledge of her laws. I shall only be expressing the opinion of the leading agriculturists of this kingdom when I say that a course of scientific instruction must be looked upon as a proper completion to the education of those young men who are destined for taking a leading position in the agricultural body. This knowledge of science no more supersedes a knowledge of practice than a youth's ordinary school education does; but they must be looked upon as separate stages in that course of tuition which prepares him to teach himself. I look upon a study of the sciences as a suitable *preparation* for gaining a knowledge of farm practice, rather than as in the least degree superseding a thorough acquaintance with the practical details.

It may be desirable for us to glance at some of the circumstances which render it necessary for those connected with the management and improvement of land to be rendered familiar with the sciences which are directly and indirectly connected with the productions to be obtained from the soil. The duty of the agriculturist is somewhat anomalous, for he enlists the assistance of Nature to produce unnatural conditions both of animal and vegetable life. If you examine the crops which receive his greatest care and attention, you will observe that they differ so widely in character from the parents whence they originally sprung, that you can scarcely recognize any relationship or similarity of form. Take, for example, the wild carrot, with its tough and woody root, seldom weighing half-an-ounce; compare with it the fleshy, nutritious, and heavy roots you see exhibited at the Christmas Show in Bingley Hall, and you need a tolerable degree of confidence in your informant to believe that the latter is a descendant of the former. The processes of cultivation have encouraged and perpetuated the peculiar *abnormal* character which the cultivator needed. This variation can only be maintained by a proper exercise of judgment and care. If left uncared for by man, it will soon resume its original and, I may say, its natural character. In fact, nearly all our crops are unnatural developments of peculiar characters which are suited to our requirements; and who can say whether or not, from amongst the numerous weeds we now reject as worthless, fresh productions valuable as food may not be developed under the processes of cultivation?

So also with our live stock. We have improved the native breeds, and encouraged in them certain unnatural developments of body which under the management they receive whilst in domestication we are able to maintain; but Nature still sets us boundaries which cannot be passed, and hence we know in practice that when we have rendered an animal most fully in accordance with our artificial standard, then the difficulty of perpetuating the species shows that we are on the limit over which Nature will not allow us to pass. In a state of nature animals are fitted to withstand the vicissitudes of seasons, and their frames possess that configuration and the organs of their bodies that formation which are best suited for the healthy discharge of the functions of life; but in our domesticated animal we have one less able to withstand the severity of our seasons, with a disposition for rest rather than for motion, with lungs and liver small and sluggish in their action, with bones fine and an excessive tendency to form fat, whilst the powers of reproduction are diminished, and in some instances destroyed. Thus the entire produce of our farms presents to us a series of unnatural and abnormal forms totally different from the parents from which they were originally obtained. These conditions, although *unnatural*, are still eminently *desirable* for our social welfare; and the *maintenance* of these peculiarities is essentially necessary, for each possesses a tendency to retrograde into its original form. Can it be that the works of Nature, so perfect in their character, are capable of receiving further improvement at the hands of man? Nature has given both to plants and animals that form and that character which are best suited *for the preservation of their species;* but to meet the requirements of man in his civilized condition, we are permitted to modify their character for our special requirements, and thus man's industry and skill are enlisted in the promotion of his own welfare; but each plant and animal still maintains within itself a tendency to return, when no longer under man's control, to its original form —the form best suited for the preservation of its species.

In order, therefore, that we may most advantageously carry-out that artificial system which constitutes our farm practice, it is clearly to our advantage to understand the materials we have to deal with, and the influences which control them. This, however, embodies a very wide range of study. The progressive changes which we observe in the ingredients of our soils becoming organized and changed into vegetable matter, and this again being consumed by animals and converted into flesh, offer an extensive field of research alike advantageous and interesting. Fully to demonstrate the advantages and the scientific interest they produce would occupy an extended series of lectures; and in the course I am now about to deliver in this College I shall have an opportunity of going somewhat into detail upon the principles of agriculture; but as you may anticipate from me some reference to the practical benefits which result from a knowledge of the sciences connected with agriculture, I may briefly notice some of them.

An acquaintance with chemistry is valuable to the cultivator of the soil, as indicating the composition of the soil, the materials removed by various crops, the crops most suited to the soil, the manures which will most economically maintain the fertility of the land, the cheapest sources of manure, their manufacture and management, the time and circumstances under which their employment is most advantageous; the selection and use of food according to the object in view, whether it be the production of flesh, fat, bone, or milk—these and numberless other points of the deepest practical importance are rendered familiar to the mind by the study of chemistry. If it produced no other advantage than enabling agriculturists to judge rightly of the value of food and manure—to avoid those fraudulent adulterations which are now so common—there would be abundant reason for studying this branch of science; but the numerous and important connections existing between its principles and the practice of agriculture render an acquaintance with it absolutely essential for any one who wishes to render his farming operations superior to mere manual routine. Besides these reasons, I may show you another which appears to my mind to be enough to stimulate the feelings of any one who is directly or indirectly engaged in agriculture, because the fact I am going to relate is about the greatest insult ever offered to agriculturists as a body which has come under my knowledge. A manure was recently offered for sale, and the prospectuses contained accurate analyses made, and duly signed, by Professors Way and Campbell; but to anyone knowing the character of the ingredients specified, the manure would immediately appear as *worthless*. But the proprietors relied upon the ignorance of the farmers as a safeguard against discovery, presuming that it would sell readily because the analyses by two leading chemists were attached, notwithstanding that these analyses condemned it as worthless to any one who could interpret the terms used. We are but on the threshold of a system in which artificial manure is destined to play a most important part. We know by the experience of a few years the extraordinary advances which have been made in the agriculture of certain districts by the use of artificial manures, whilst there is scarcely any farm in this country but has experienced some benefit therefrom; and can we doubt but that, now we are beginning to understand their mode of action, even greater advantages are yet to be developed? The agriculturists must, therefore, prepare themselves for taking advantage of this progressive movement, or else frauds will proportionately increase, and the ignorant will become the dupes of the cunning.

The study of botany has also powerful claims. It is not simply the duty of the agriculturist to produce certain plants in a natural condition, but, as we have already seen, to maintain and encourage certain peculiarities. It must evidently be an advantage, to anyone thus occupied, to understand the structure and food of plants, and their general processes of growth, so that he may enlist the assistance of the functions of life in promoting the object aimed at. A knowledge of botany is likewise valuable in enabling anyone to judge of the quality and capabilities of land. The weeds which land produces will enable a botanist to form a very correct idea of the nature of the land. These may be considered as natural products of the soil, and such as are suited to its condition and composition. Almost every class of soil has its peculiar plants—sandy soils, clays, clayey loams, alluvial soils, lacustrine and fluviatile beaches, gravels, drift-sand—moors, marshes, and mountain pastures; whilst these again are modified by the subsoils being porous or retentive of moisture. These may be looked upon as *natural indicators* of the character of the soil, but a botanist can alone interpret the tale which Nature thus so plainly tells.

In like manner geology is valuable, in developing the hidden resources of property; and thus wealth is often accumulated from stores which the untutored mind would fail to detect. By a study of this science we likewise gain considerable advantages in the drainage of land, in the search for water, building materials, and also in obtaining those stores of mineral phosphates and soluble silica which exist abundantly in some geological formations, and are of the greatest value as fertilizers of the land. Nor are the advantages which geology gives confined to the assistance it offers as enabling the resources of a property to be developed economically, but it also teaches when your search will be useless, and thus save you from loss and disappointment.

The principles upon which farm buildings should be built and arranged so as to combine economy of cost in the erection, with an economy of labour in their subsequent use, are very important subjects for study; and so likewise are the circumstances and conditions which maintain and promote the healthy action of animal and vegetable life.

Thus, to the agriculturist a study of the sciences connected with the practice of farming offers inducements of no ordinary value, and reveals to him the laws which regulate and govern those results, to the attainment of which all his efforts are directed. The advantages, however, are not limited to this class, for any improvement which promotes the welfare of the occupier of the land indirectly benefits the proprietor; for their interest being bound together, prosperity and adversity are alike influential upon each. The owner of land has another inducement; for as the practice of agriculture becomes more and more perfect, so will tenants be able to produce from the land crops of greater value with even less injury to the land than under present systems. The improvement of landed property is closely connected with a knowledge of the science of agriculture; for it is manifest that he who with equal practical knowledge is also acquainted with the nature and character of the bodies he has to operate on, must be in a better position to carry out improvements with economy and success.

The record of the past justifies these hopes; for although most of our improved agricultural practices may be traced to a foundation originally laid by experience, still the improvements which have been introduced may in a great measure be traced to the light of knowledge and observation which has of late years been thrown upon farming. Review for a moment the history of agriculture for the last twenty years. Mark the progressive improvements which have become more numerous and more important every year, and you will not fail to be convinced that the tide of progress is rolling onwards with an increasing power, and that our future advances will be even greater than the past. You may rely upon it that the practice of agriculture is destined at no distant period to be one of the most interesting branches of national industry, and in its prosecution the highest ability will be demanded. For this reason it becomes of the deepest importance that those engaged in the practice of agriculture should be men of intelligence, having a clear knowledge of the processes of nature with which they are so constantly brought in contact, for then they will be prepared to record their results with accuracy, and to deduce therefrom correct opinions, which will lead them forward to a perfect knowledge of the true principles upon which their practice is based. I consider that no course is more calculated to promote the welfare and future progress of agricultural practice than a general diffusion of a knowledge of the sciences connected with agriculture; not that this, as I said before, is to make men farmers, but it is a most important preparation for enabling them to learn the practice. To those who are engaged in these duties much knowledge will be valuable, but to those who may be entering upon this occupation in life it is positively essential. Our endeavour should be to increase the number of those agriculturists who combine in themselves that knowledge which has hitherto been generally divided between two classes; I refer to the classes distinguished as men of science and men of experience. By combining these characters in each individual, all opposition will be dissipated; for by his knowledge of practice his opinions will be subdued, and moderated by the guidance of science; whilst his acquaintance with science will enable him to take advantage of improvements as they are introduced, to show discretion in selecting such as are suitable to his farm, and are not simply alterations but really improvements; and it will also prepare him for co-operating in the general advance of the practice.

To the lover of nature these studies are the source of much mental delight; and I trust the day is not far distant when pecuniary advantage will not be the only inducement to these studies. On every hand the agriculturist is surrounded by those beauties of nature which elevate the mind, whilst they render it more humble, and encourage those feelings of love and gratitude towards the Author of all good, which manifest themselves in works of love to those around us. Permit me to specify one of those agencies with which we are daily brought in contact, and yet we scarcely regard it. Observe the influence of light upon the productive character of our crops. You are well aware of the fact that vegetable growth is dependent upon its presence; but we are too apt to look upon light as constant in its character; but it is not so, for from day to day progressive changes are observable in the character of light, which operate most powerfully upon vegetation. I may remind you of the fact that three rays, possessing distinct characters and influences, as well as differing in their colour, combine to form colourless light. We have the red ray, the blue ray, and the yellow ray, each characterised by distinct powers, performing different duties, but combining to form one perfect and colourless ray—apt illustration of that Triune Creator who is so often symbolized by light! But we have this remarkable fact to add—that although light is always perfect, yet it varies in its character. In the spring months we have the blue ray predominating; this is termed the magnetic ray, and from its possessing this peculiar character we find light at this period especially endowed with an invigorating energy, which raises vegetation from the torpor of its winter sleep, excites and stimulates its organs again to discharge their functions, and fully to awake to the performance of the powers of vitality. But as spring passes into summer, so another influence becomes necessary; for as the energies of the plant have thus been stimulated into action, so now does it become necessary for the supplies of nourishment to be of such a character that the plant can assimilate them and build them up into its growth. The chemical changes which take place in the sap of plants, and render it suitable for vegetable nutrition, are to a very great extent produced by the yellow ray of light—in fact, in its absence healthy growth is impossible. This yellow ray is found to gain the ascendancy as the summer advances, and by its agency the plant, which has been stimulated to vigorous action, now receives the additional supplies of duly matured nourishment for its rapid development. As the summer advances, and additional heat is needed for perfecting the earlier growth and ripening the seed, so the red or heat-giving ray preponderates over the others, and thus we have the development of the plant completed under its influence by the perfect formation of its seed, fitted either as food for man or beast, or else adapted for the perpetuation of the species. In this manner we have a successive variation in the character of light, each stage especially adapted for the requirements of that period of growth; but when this growth is completed, and vegetation is about to enter upon its winter of slumber and inaction, then we find the rays balancing each other, and neither of them preponderating. Although each of these rays in succession gains the ascendancy and preponderates over the others, still all of them continue to co-operate throughout the year; but during the returning seasons of summer and winter, seed time and harvest, vegetation thus derives especial assistance from these peculiar powers of light, and it gives another illustration of the harmony existing in every department of Nature's works, and proves that all her laws may be traced to the action of the mind. Nor must this interesting provision of Nature be looked upon as a solitary example. The student of her laws finds evidences of design throughout that temple which has been raised by the grand Architect of the Universe; and wherever he searches he finds a mine of wealth encouraging him onwards as a zealous inquirer after truth. I do not hesitate to say that no body of men have richer opportunities for mental gratification, and without interfering with their duties, than those whose position in life places them amidst rural scenes; I refer especially to our country gentlemen and agriculturists: and shall it be that any will willingly wander through the lovely labyrinths of Nature with eyes closed to the beauties which are around them? It cannot be that the persons who constitute these important classes can ever be content merely to fulfil the duties which devolve upon them in their respective stations, and pass through life insensible to those mental enjoyments with which a beneficent Creator has strewed their paths.

In our universities facilities are offered for gaining knowledge of this description; but how very small the *proportion* of those who can take advantage of these opportunities! The Council of Queen's College, under a conviction of the great importance of promoting the study of the sciences in their application to the arts of life, have recently taken a most important step by establishing a special department for these subjects, in order that persons resident in the Midland Counties may have opportunities of acquiring a thorough insight into the principles which control the arts of life.

I have very hastily glanced at the manner in which the old maxim that "knowledge is power" applies to those connected with the soil by the rights of ownership or of occupation, and I cannot but think you will agree with me when I say that a great benefit has been conferred upon the Midland Counties by the sphere of scientific education in this college being thus extended, and an opportunity afforded for obtaining such knowledge *within* the district. From the department of agriculture with which I am more immediately connected I trust extensive benefit will be distributed throughout the district—a district remarkable for the wealth and intelligence of those connected with landed property; and it will, on all occasions, be my endeavour to co-operate with the professors with whom I have the honour to be associated in this department, in order that, both within the walls of this institution as well as beyond its boundaries, the application of science to the productions of the land may be promoted; and I trust that ere long the *students* of this college, as well as its officers, may be seen foremost amongst those most zealous for the progress of agricultural science and practice.

I would avail myself of this opportunity to explain to you that the instruction in the Agricultural Division of the Department of Science is adapted for two classes: First, for those whose future position in life as proprietors of the land or as occupiers of the soil renders it eminently desirable that they should have a complete knowledge of the sciences bearing upon agriculture and rural economy. Under a powerful representation of the public necessity which exists for such a step, a Royal charter has been recently granted for the appointment of Examiners, who are empowered to grant diplomas in agriculture to persons duly qualified to receive this honourable distinction. The system laid down by the examiners requires proof of a satisfactory and sufficient scientific and practical education. Two years' attendance upon lectures is necessary before the candidate can appear for his examination upon the science of agriculture, and he must also reside upon a farm for two years before he can appear for his examination in the practice of agriculture. A complete staff of professors has been organized in Queen's College for preparing persons for their examination in the science of agriculture; and it is anticipated that the sons of many resident in the midland counties will enter upon such a regular course of collegiate instruction with the advantage of being in the immediate neighbourhood of their parents or guardians. Any gentleman desirous of gaining fuller information upon this point, should place himself in communication with the Rev. the Warden of Queen College.

But there is a second class for whom the Council have made special arrangements, with a view to render this institution as valuable as possible to the district. I refer to those whose engagements prevent them becoming regular students in the College, and attending any extended succession of lectures. For their advantage, arrangements have been made by which they may attend any *single* course of lectures, on payment of the professors' and the college-fees; and this arrangement applies to the course of lectures upon the principles of agriculture which I am now about to deliver in this college. I shall especially endeavour, whilst treating the subjects which come under my consideration, to render the fundamental principles upon which the practice of agriculture is based, familiar to the minds of my hearers; and I venture to hope that many to whom these subjects are now veiled in mystery and doubt may thereby gain clear views of those beautiful processes of nature which so wonderfully regulate the productions of animal and vegetable life. Much of the agricultural literature of the present day is robbed of its interest and utility by the large proportion who are unable fully to comprehend the most important researches which are published in our agricultural journals. To those persons whose duties prevent any lengthened absence from their residences, the present course of lectures offers an opportunity for gaining an insight into the general principles of the science of agriculture; but it must be remembered that, by a complete system of lectures alone can any one hope to become fully conversant with the science of agriculture. The present course of lectures upon the principles which regulate the production, preservation, and use of farm produce, may be useful to those who cannot avail themselves of a more complete course of instruction; but to every young man destined for a rural life I would say, Do not content yourself with a general summary; but resolve rather upon becoming master of the subject, by attending the complete series.

I think you will agree with me that, great as have been the advantages which have resulted from the assistance of science, greater benefits are yet to be developed from the hearty co-operation now existing between all connected with, or interested in, the soil. When we see the principles of chemistry so powerfully aiding the farmer in the economical production and employment of food and manure, proving to him the value of the hidden stores beneath, above, and around him, and teaching him how to use them most advantageously; when we see the kindred sciences all contributing their help, and mechanics especially coming forward with numberless contrivances for promoting the production and preparation of our crops—as, for example, in our steam-cultivators, which prepare, and ere long will sow, the land; our reaping machines, which gather the produce; and our thrashing machines, which prepare it for market—we cannot fail to look forward into the future with bright hopes for even greater progress. I do not imagine that any agency is better calculated to promote this object than the scientific education of those who are to become the actors on the scene; and I believe the time is not far distant when a knowledge of the sciences connected with the arts of life will be considered as essential to success as we now consider a good school-education to be.

The rising generation of farmers must not content themselves by preparing simply to reap the fruit which others have laboured for: they must remember that they must themselves become fellow-labourers in the cause, and contribute towards the general prosperity of that department with which their interests are most closely identified. It will then be a source of gratification to the Council of Queen's College, that they have in some degree contributed to this happy result; and you, gentlemen, may possibly remember with pleasure having given your support and encouragement to the early efforts made in the Agricultural Division of the Department of Science in Queen's College, Birmingham.

THE USE AND ABUSE OF MANGOLD WURZEL.

BY A PRACTICAL FARMER.

What we should do without the "mangold wurzel," "mangold wurtzel," "mangel wurzel," or as it is now commonly designated—indeed Anglisised as—"mangolds," *i. e.* "mangold crop," I cannot divine. On all good loams it has become the staple root-crop: immense quantities have this year been grown in these favoured districts, and the crops are exceedingly good, very few crops averaging less than thirty tons per acre, many yielding forty, and some select ones nearly fifty tons an acre. The varieties now cultivated are also decided proofs of the progress of this invaluable root. We have now most superior stocks of long reds and long yellows, red globes and yellow globes, all vying with each other for the predominance in quantity and quality. We have also many sub-varieties of these stocks. The long reds, for instance, comprize the long straight root, rising from twelve to twenty-two inches above the surface, with rather too strong hold upon the soil; and the long bugle or cow's-horn sort, which loll about the ridge in every conceivable way and shape of root: they are of equal size to the other, and have such slight hold of the soil as to be easily taken up by hand to be cast into the cart. Then we have the short and straight variety, which rises about twelve inches above the ridge, and buries its root and fangs so deeply as to be with difficulty taken up, and is of tough and fibrous character. The long yellows are less divided into different stocks, and the care recently bestowed upon their culture has so improved them, that they are now equal in growth and weight of crop to the reds, and are said to possess more nutritive value: certainly many extraordinary crops have this year been produced. The red and yellow globes have each a distinctive character—the one partaking of the true globular form, of great diameter and substance; the other of an oval or oblong shape, also of great diameter and considerable height. Both sorts yield astonishing crops under good culture. I have grown each variety under precisely similar culture, and I am free to confess that my old predilection for the long bugle variety has received a check. If the parent stocks are equally genuine and good, I know not which I should prefer upon my occupation; but on thin soils the globes are preferable, besides being the best keepers. A crop of yellow globes grown upon the farm of one of my neighbours has this year produced above forty-eight tons to the acre; whilst the long yellows, on the farm in the occupation of another neighbour, have yielded above forty-seven tons. The fortieth part of an acre in each case was weighed, and gave the above result. The yellow globe plot had 303 bulbs, averaging 9lbs. 2oz. each; the long yellow plot had 358 roots, averaging 7lbs. 8oz. each: these crops, with others, were entered for a local prize. The judges divided the amount, on the ground of equality, which partly led to the test of weighing an average plot in each field. What other amongst the many of our various green crops can give such a weight of highly nutritious food? Assuredly, under proper care and judicious application, this is an invaluable crop; and the purport of this paper is to reiterate some plain directions for the use of this crop, and to prevent its abuse.

The turnip crop, particularly the Swedish turnip, has for the past few years been a very faulty one, in very many cases a failing one, in very few cases a good one. The mangold crop has, in general, been a good one. Now can this mangold crop be made a true substitute for the turnip crop—*i. e.*, equally useful and nutritive to the general farm stock? I think not. Nothing can fully compensate for the loss of the turnip or coleseed crop as food for sheep, particularly lambs. There is a quality in these roots and these plants well adapted to promote the well-doing of sheep stock, and which the mangold does not possess, at least in the autumn; it is too much imbued with watery particles to be a safe food for sheep in the autumn. Well, then, to misapply it as food for sheep at this season is an abuse of its qualifications or properties; it is not its natural use, and it cannot safely be thus administered without other effective aids and correctives. The chief thing to be guarded against is its highly purgative character when given to young or weak stock. If the farmer is compelled to resort to his mangold crop, he must contrive to supply an astringent corrective as well. Now in these bad times of cheap produce —cheap wheat—what can he do better than supply his sheep with a ration of wheat-flour in moderate quantity, say about one quarter of a pound daily to each? There are several other correctives I could name, but would say that mangolds must not to any extent be given alone. The flour from Indian corn, barley meal, or a very small quantity of pea or bean meal, will do exceedingly well. Or, again, good and sweet pea or bean straw—if two years old, all the better—good wheat, barley, or oat straw, all will do good in moderation. Then we have linseed cake, and some of the various millets now coming into general use might be applied. A judicious mixture of meals would be highly serviceable. The stock-master's eye, after all, is the great preventive, and he will often find it necessary to withhold the mangolds altogether, and to put them upon dry regimen. I am speaking more particularly as to autumn and winter feeding. As the season advances, the roots lose their watery nature, and in the months of March and April may be given freely with great advantage.

The remarks above, though referring exclusively to sheep, are also equally applicable to cattle, particularly young cattle and milking cows. It is only in the spring that the mangold becomes a good, safe, wholesome, and highly nutritious food. All animals are fond of it. Horses eat these roots voraciously; young horses, and even foals, will do well upon a moderate quantity, and plenty of straw: in this way it is a fair substitute for corn. Pigs will fatten upon them; and the new mode of pulping is a great aid to their well-doing: even poultry will do well upon this pulped food in connection with refuse corn or meal. I have said that the injurious tendency of the root is owing to its laxative qualities. Well, then, cannot we so manage it as to speedily deprive it of these deleterious propensities? Yes. In the first place, let all roots required for immediate use be so placed or packed that the sun, air, and wind may have full effect upon them, to dry up or dissipate their watery nature. For this purpose the practice of throwing them into small heaps throughout the field where grown is good; next, the putting them into root-hovels having plenty of ventilation is good; then the placing them in graves or oblong rows, and thatching them down, is good. Again, gathering them in moderate heaps, and covering them with stubble, will do well. Finally, for permanent use, the best and safest plan is to make long graves, or rows of them, with eight-feet bottom and pointed top; thatch them down for a week or ten days, and then cover the whole with earth, sufficiently thick to withstand a severe frost, taking care to leave the closing of the ridge or narrow top open as long as it is safe from early frosts; this mode ensures greater safety, in permitting any fermentation to escape. I need scarcely remark that these graves will require attention early in the spring, as the roots will commence growing; they then require air, or fermentation is soon generated, and great loss from rotting ensues. If this is closely attended to, the roots will keep well, up to Midsummer, or even longer, and retain great nutritive value, and are much in request at the precise season coming between the growth of the spring grasses and forage and the finishing up of the winter provender. The leaves I do not hold in great account; they are useful as a resort when food is very scarce, but in the general way they are quite as well thrown upon the soil, to be ploughed in. My practice has been to feed them off with breeding ewes, but the scouring it produces often does them hurt; occasionally stripping them off, and carting them on to the grass lands, but more frequently to turn the sheep on, as they lie, immediately the roots are carried. Fine as this remarkable season has been, the sheep manifest the same tendency to scour, which is a bad preparation for successful wintering.

BELGIAN FARMING.

Dear Sir,—You are aware that Belgium has hitherto been held out to the world as the model of the small farm system, or the subdivision of the land; and whilst advocating the contrary principle, as adopted in England, I have hitherto thought it possible that Belgium might, from local causes, form an exception to the general rule; and that from the ready market she meets for the multifarious small products of her soil, in the British metropolis, the system of subdivision might there be found more advantageous to the community than that of the aggregation of the land.

The following paper, however, which I have translated from the *Journal de Gand*, shows that a change is taking place on the subject, in the opinions of intelligent men in that country; and that as society becomes more dense, and the demand for cereal food more urgent, the system of subdivision must give way; and the influence of science, capital, and enterprise supersede that of traditional routine, prejudice, and parsimony.

Yours truly,

London, Nov. 6. An Old Norfolk Farmer.

BELGIAN AGRICULTURE.

"THE GENTLEMAN FARMER."

Agriculture is at this moment passing through one of those transitions to which many branches of human activity have successively submitted. From a trade, it has become a great manufacture. The division of labour and an intelligent impetus seem on the eve of completely modifying it. This division of labour constitutes one of the principal elements of success in all manufactures; and it explains to us why the generality of employments practised on a small scale cannot sustain a competition, whatever otherwise may be their chances of success. Thus, a tailor in a village is satisfied with a very moderate income, and everything about him denotes frugality. The master tailor in a city is extravagant in everything: he pays more taxes on his house than the whole gains of the former; and the meanest of his workmen receives wages greater than the humble day's work of the village tailor: he does hardly anything himself, and at times even assumes the airs of a fundholder, and in fact creates funds; whilst his village contemporary leads a life of poverty. The one does everything himself, and everything is done badly, because the multiplicity of his labours are a continual obstacle to his becoming skilful in any one branch, and he produces little, because of his unskilfulness; and because a considerable part of his time is lost in passing from one branch of work to another. The master tailor has good workman, because each takes constantly his own department of work, and thus perfects himself in the particular branch to which he has devoted himself.

If it is advantageous for production to divide the several branches of manual labour, it is still more so to separate intellectual from manual labour. This division is a fundamental one; for the man who devotes a part of his intelligence to the direction of his own hands, is, by that single act, enabled to employ only a fraction of it in directing the hand of another. At a period fertile in instruction, the operatives, not comprehending the power of mind, have attempted to organize workshops without patron or masters. "Why," say they, "give so large a part of the benefits to masters who do nothing?" They have soon found out that intelligence or mind is the soul of the workshop, and that it is as senseless to attempt to make it productive without a master, as to attempt to make a body walk without a soul; and the national workshops, organized out of hatred to patrons, have furnished the most conclusive arguments in their favour.

Mind is the first power, and furnishes the first labour in manufacture; it is that which directs and utilizes other labour;

and it frequently sports with obstacles which appear insurmountable.

What has not been alleged against the mechanical spinning of flax! It appeared very absurd, at one period, to attempt, by means of enormous expenses in buildings and machinery, and in payment of large wages, to enter into competition with women and children, so moderate in their requirements that frequently there was no sensible difference between the price of the thread and that of the flax which served to make it. Notwithstanding this, hand-spinning has fallen before the industrial genius which directs those expensive manufactories; neither the moderation of its requirements, nor popular clamour, nor Governmental measures, nor public charity, nor the prejudices of consumers—nothing, in short, has been able to save hand-spinning.

Such, again, is the competition that railways have sustained with carriage-drivers. The first expenses of railways are enormous, and the salaries of those employed on them are large. The coachman or waggoner, conducting his vehicle himself, and economising the expense of assistants of all kinds, thought it absurd that the extravagance of railways could possibly compete with him in conveyance.

Whether these changes are a good or an evil, is not now the question, for they are in operation; and the fact alone concerns us at the present moment. *And what obstacle, we ask, prevents a similar change from being effected in agriculture?*

It would be objected to us, that it is impossible that an educated man should subject himself to all the sparings and privations to which our cultivators submit. But why must an intelligent large farmer lead the life of the small tenant farmer? Our flax-spinners of the present day are not quite so moderate in their family mode of living as the ancient hand-spinners.

When a farmer is compelled to live and supply all the wants of a numerous family by means of a cultivation of ten hectares (about 25 acres) held on lease, he *must be parsimonious.* But if the farm is multiplied tenfold, it is probable that the profits will be tenfold, and the expense of management might also be tenfold without compromising the prosperity of his enterprise. If, in the first instance, the cultivator is compelled to reduce the expense of his establishment, and the consumption of provisions calculated at the market price to an annual sum of twelve hundred francs, he must subject himself to many privations, especially if he has children under age. Let us deduct from this sum four hundred francs for the wages of the husbandman, who is at once labourer and farming bailiff; there then remains eight hundred francs a-year, for interest of capital employed in the farm, and as remuneration for his own mental labour. If we, besides, reflect that his live cattle, furniture, utensils, manure, &c., require a capital of many thousand francs, and are subject to many casualties, we shall be compelled to award but a very small remuneration to his intellectual exertions.

But by multiplying this ten times, the interest of the floating capital and the remuneration of the masters will be represented by eight thousand francs, whilst it will be necessary to leave the manual labours of the small farmer to the workmen.

It will be objected that large farms are not so well cultivated as small ones. This allegation might have been true at one period; to direct a great undertaking, it requires a degree of intelligence and a capital which are not to be found amongst agriculturists in every country. But we believe that in England the intelligence and capital of the gentlemen-farmers place them in a condition to cultivate better than the small farmers; and it is well known that their produce per acre is more considerable.

Another objection is, that in order to conduct an operation it is necessary to be acquainted with it in all its details; and never would a man of family or *gentleman* descend to familiarize himself with the operations of farming, as do the small farmers. This objection was made to a gentleman-farmer who went to visit the manufactory of a skilful flax-spinner. At that instant a thread was broken in one of the machines of a complicated construction, called continuous. The master was requested to rejoin the broken thread himself; but he handled it so awkwardly, took so long a time, and succeeded so badly, that the gentleman found there was no occasion, on the score of delicacy, to refrain from retorting upon the flax-spinner an argument, the falseness of which was evident. After five-minutes' practice the gentleman-farmer had learned to hoe better than the spinner how to fasten a broken thread.

In undertaking a business it is essential for us to know well the part we intend to practise; and if we confine ourselves to the intellectual part of the work, which is the most important, we should well understand it. We then assume the position belonging to a man of intelligence, leaving to the winders the employment of winding, to the thrashers the thrashing, unless we have advantageous means of superseding them.

The old methods have become obsolete for the conveyance of merchandise by sea and by land, for the extraction of coal and metals, for the spinning of flax, wool, and cotton, &c., and it is very possible that the same change will take place in the manufacture of meat, butter, and other alimentary commodities. This has, in fact, been the case in some places in England, Scotland, and Hanover, and hence has arisen the class of *gentlemen farmers.*

The *gentleman farmer* is to the small occupier what the machine-maker is to the village blacksmith, or the privateer to the trader, or the director of a line of railway to the waggoner, or the spinner of flax by machinery to the hand-spinner. He takes his rank in society not by reason of the nature of his profession, but of his personal advantages, his education, information, and pecuniary position.

It is a strange thing that we repeat every day that agriculture is the first of arts, and yet none have to struggle more against contempt than the agriculturists. Has the old adage become false, that "he who produces the wool is as worthy as he who spins it"? or that he who grows the wheat is as respectable as he who lets out his ships or waggons to convey it to market? It appears more likely that modern society will esteem or seek out men for what they are, and not for the profession they exercise. For a man to occupy a distinguished rank in society it signifies little what is the profession he exercises; but it is essential that he exercises it in a distinguished manner. It is said, "There is no foolish trade, but there are many foolish tradesmen." It would be quite as just to say "There are no distinguished professions, but there are many distinguished professors." Let the agriculturist place himself by his education, information, and talents on the level with the manufacturer, and no one will dream of refusing him that consideration to which his personal qualities give him a claim.

This is the place to reply to a question—Admitting that a man endowed with intelligence and talents addicts himself to agriculture, will he find that employment the means of sustaining his personal qualities?

It must be acknowledged that in this respect the agriculturist labours under difficulties. These are inherent: not in his occupation, but in the locality in which it must be followed. If the agriculturist wished to seek the society of cities, he would meet with a material hindrance, similar to that of a metallurgic society. Besides, it is his own fault, if, when he neglects the duties of his profession to addict himself to other matters, he experiences the fate of all persons who neglect their proper business. Each must regulate his manner of living according to his professional occupations, and in accordance with the place where he dwells. In the meanwhile it is right to state, that if the advantages are in default, the blame must be thrown, not upon the profession he has chosen, but upon his manner of conducting it; and there is no reason why he should not procure for himself by means of the profits he would realize, the same enjoyments as every other manufacturer removed from cities by the nature of his occupation.

Let us again resume the case of two farms—the one of ten, the other of one hundred hectares. If a farmer who cultivates ten hectares can gain wherewith to supply the strict wants of his family; if he can even, as we see many do, fatten his cattle and realize savings, clearly he who cultivates a hundred hectares ought to realize profits sufficient to render it unnecessary to inflict upon himself the proverbial parsimony of the small farmers,

According to the calculation of a Ghentish cultivator, M. Delaruye, a hectare of land, producing alternately potatoes, wheat, rye, turnips, oats, trefoil, rye and turnips, yield a gross profit averaging 530 francs per annum. If we estimate the articles at the price of the day (February, 1857), the average would be only 330 francs—say, for 100 hectares 33,000 francs, from which it is necessary to deduct the rent, taxes, and interest of floating capital. These amount to 16,000 francs, leaving still a balance of 17,000 francs. It will be said to us, "All this is very fine in theory, but in practice these profits are not realized." Well, this is not a question of theory, for the scale of profits is taken from a work entitled "Het Pachtersrigt," written by a farmer who has realized it upon the land he cultivates, and who for a series of years has been constantly called in to arbitrate in cases of disputes between agriculturists.

It may be objected to us that this refers to exceptional land; but M. Delaruye speaks of sandy soils—of those lands called by geographers "*arid and sandy plains*," and which require manuring every year.

A more valid objection will be raised—that it refers to land situated in the neighbourhood of a large town, and that, far from the great centres of population, there exist lands incomparably better which yield much less profit. But it may justly be said that wheat, rye, and oats have, with very few exceptions, the same value in all localities of the country on account of the facility of communication; and the same may be said of the butter and meat produced by the potatoes, turnips, and trefoil. The differences in price, as well for the manure as for the products, if they exist, are compensated for in the price of hand-labour and rent. But it is true that all localities have not equally availed themselves of the advantages offered to them, and that cultivation is far from being everywhere so advanced as in the neighbourhood of the large towns.

On the other hand, it is proper also to observe that these calculations refer to the most simple and common course of husbandry. The distribution of crops given above, according to M. Delaruye, has been practised for a very long time in a great part of the kingdom; but it is no longer in accordance either with the requirements of the consumption or with the progress of agricultural science. The *gentleman farmer* will avoid it: under his management the land yields richer harvests. Thanks to *high farming:* if he cultivates wheat he obtains 43 hectolitres per hectare,* instead of 27,† as M. Delargne admits; and he much prefers producing green crops, by which he so greatly increases the produce, that it would be rash to think of estimating where its progress will stop.

With those who have kept pace with the innovations introduced by improved cultivation, or *high farming*, the treatment of the soil is on the eve of undergoing a total transformation by investing in it immense capitals, in order to increase its productiveness for the promotion of the well-being of all as, well as for those whose intelligence has effected it, and for whom it will provide profits and honours.

Already the improved culture yields profits incomparably greater than the ancient methods. It is the only principle that men of talent and information can adopt: and who will predict what it will one day realize in their hands?

REPEAL OF THE HOP EXCISE DUTY.

GREAT MEETING AT TUNBRIDGE WELLS.

A very numerous and influential meeting of hop-planters and others interested in the cultivation of hops, was held in the large room of the Sussex Hotel, Tunbridge Wells, on Friday, 5th Nov., "for the purpose of taking active and immediate measures for promoting the freedom of the planter, by the repeal of the excise duty on hops." Tunbridge Wells had been fixed upon for the place of meeting, as mutually a most convenient rendezvous for the planters of both Kent and Sussex, who were earnestly urged to make a point of attending. As regards the former, however, it unfortunately happened that no less than three agricultural associations met on the same day. Two o'clock was the hour appointed for the meeting; but for some time previous it became evident, from the bustle in front of the hotel, and at adjacent inns, that there would be a very large assembly of gentlemen interested in the cultivation of the hop-plant. The proceedings were commenced shortly after two, when, according to the calculation of persons experienced in the numbers of public meetings, there would be very few short of five hundred present. Upon and near to the platform were the Hon. H. Brand, M.P., J. G. Dodson, Esq., M.P., Mr. Moses Body (Chairman of the Hop Excise Duty Repeal Association); Mr. Henry Snelling, Alton, Hants; Mr. Berry, Canterbury; Mr. Overy, Whatlington, near Battle; Mr. Monckton, East Peckham; Rev. J. Foley, Vicar of Wadhurst; Mr. J. W. Roper, Frant; Mr. T. Barton, Wadhurst; Mr. Henry Hickmott, Frant; Mr. Hatch; Mr. Charles Waterhouse; Mr. Jenner; Mr. G. P. Bacon (Honorary Secretary to the Repeal Association); Mr. Bourne, Robertsbridge; Mr. Hilder, Bodiham; Mr. John Kenward, Uckfield; Mr. Burgess, Bodiham; Mr. Barton, Robertsbridge; Mr. Latter, Wadhurst; Mr. J. G. Wenman, Wadhurst; Mr. Smith, Robertsbridge; Mr. Nash, Rochester; Mr. Buss, Spelmenden; Mr. James Dunn, Robertsbridge; Mr. Cheesman, Wadhurst; Mr. Henry Edwards, Tunbridge Wells; Mr. J. Baker, Pembury; Mr.

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* About 46½ bushels per acre.

† Nearly 30 bushels per acre.

Thos. Wenman, Wadhurst; Mr. Austen, Tunbridge; Mr. J. B. Newington, Wadhurst; Mr. Henry Kemp, Salehurst; Mr. Parriss, Frant; Mr. Harmer, Wadhurst; Mr. John Hodges, Tunbridge Wells; Mr. Smith, Icklesham; Mr. John White; Mr. Hartridge, Marden; Mr. Waite, Tunbridge; Mr. Smith, Lamberhurst; Mr. Waterham, Brenchley; Mr. Apps, Brightling; Mr. Tompsett, Mayfield; Mr. Ambrose Dunk, Rolvington; Mr. George Hayward, Doubell; Mr. Moneypenny, Benenden; Mr. Charles Verrall, Lewes; the representative of Messrs. Pattenden and Smith, &c., &c., &c.

Mr. M. Body moved that the Hon. Mr. Brand, one of the members for Lewes, take the chair.

J. G. Dodson, Esq., seconded the motion, which was carried by acclamation.

The following memorial was unanimously adopted by the meeting:

"To the Right Honourable the Lords Commissioners of Her Majesty's Treasury.

"The Humble Memorial of the undersigned Hop-planters and others interested in the Cultivation of Hops,

"Sheweth—

"That, at a public meeting held at Tunbridge Wells on Friday, the 5th Nov., by a numerous body of hop-planters from Sussex, the Weald, and East Kent, it was unanimously resolved to memorialize your Lordships, and most respectfully, but most earnestly, to entreat your Lordships to take into your serious consideration the position of extreme difficulty and embarrassment in which, owing to the disastrous operations of the excise hop duty, your memorialists now find themselves; and to pray you to avert, by the timely repeal of that impost, the distress, and in many cases the ruin, in which a continued enforcement of that tax must inevitably involve a number of industrious and respectable agriculturists engaged in the cultivation of hops.

"Unfortunately, the body whom your memorialists represent have too frequently, of late years, been compelled to appeal to your Lordships, to ask for indulgence, in consequence of the injurious pressure of the duty; and on those occasions the facts and arguments bearing upon the question have been so fully proved before you, that your memorialists feel it would be only needlessly trespassing upon your Lordships to recapitulate the grounds or reproduce the facts upon which such appeals have been based. Your memorialists, therefore, will merely now briefly allude to the broad arguments affecting the question of the excise duty and its general bearing on the hop-growers, and state the practical result which the operations of the impost, coupled with several years of abundant crops, have at last brought about.

"Your memorialists beg to point out that the market price of hops is not regulated by the fact that a duty of 2d. per lb. (or say 19s. per cwt.) is paid upon them. The market value of hops is regulated by supply and demand; and as the demand is, so to speak, mainly limited by the consumption of beer, it follows that in years of abundant hop-growths the supply is in excess, and the market price falls naturally to a very low figure, without any reference to the amount paid per cwt. as excise duty. The practical effect of this is, that the duty comes out of the pocket of the planter, instead of being, as is the rule with other duty-paid commodities—both in principle and practice—paid by the consumer. Your memorialists are well aware that they will be met with the argument that 'all duties are ultimately paid by the consumer;' but it is an important feature in this case, and will be found, on close investigation, an unassailable fact, that the excise duty on hops forms an exception to the rule. Your memorialists place this point in the front of the argument, because it is upon the operation of this 'exception' that so much of injustice, and of the unequal and injurious pressure of the duty, rests. The state of things which obtains at present will supply a striking illustration of the operation of the duty. Sussex hops are now selling from 40s. for ordinary to 56s. per cwt. for the very finest marks. Deduct the amount of the duty (say 19s.) and the net price would be 21s. and 37s. per cwt. Now, as the prime cost of producing these hops would exceed 48s. per cwt., it follows that, at the highest price just quoted, the planter is subject to heavy loss. Your memorialists confidently maintain that the market price would be little, if at all, influenced by that fact, were there no excise duty on hops, since the price is alone regulated by supply and demand, except in so far as the effect of the duty, as hereinafter explained, is to disturb the market, and drive down prices.

"Again, as to the unequal and unfair operation of the tax The hops of Mid and East Kent fetch from 60s. to 120s. at this moment, and as only the same duty is levied on them as on all other hops the produce of this country, it is clear that while the impost is a tax of only some 15 or 30 per cent. on the selling prices of such hops, it becomes a tax of at least 35 to 50 per cent. on that of Sussex growths. In other words, while the duty forms from a sixth to a third part of the price obtained by the grower of Kent hops, it swallows up from a third to one-half that realized by the Sussex planter.

"The operation of the tax is also most injurious, inasmuch as owing to its collection at stated periods, May and November, it causes the market to be glutted at those times, in order to enable the planter to raise the needful funds. In the years of abundance the pressure caused by having to pay the enormous levies of the Excise collector is doubly onerous, and your memorialists do not hesitate to assert that the market value of hops in such years is driven down to an extent absolutely ruinous by the artificial pressure thus super-added to the natural depreciation which abundance itself causes. When to these statements is added the fact that the hop grower, owing to the singularly delicate and precarious character of the plant, is wholly unable to calculate from year to year the quantity his hop garden will produce, and that he consequently cannot form even an approximate estimate of the amount of duty he may be called upon to pay, nor of the value of the crop he will have to dispose of, your memorialists conceive that they have briefly placed before your Lordships the leading circumstances that affect the case.

"As regards the present painfully embarrassed position of the planters, very little explanation will be necessary to point out the events by which it has been brought about. It arises from the effect of four years of abundant crop—from the low prices realized, as the natural result of such abundance—coupled with the enormous sums called for as Excise duty—and from the artificially enhanced pressure upon the markets, caused by the necessity of providing those sums. It may be added also with perfect truth that an additional source of the planters' distress is due to the course pursued in 1854, when the Government reduced the Customs duty by more than half, and let in a large quantity of foreign hops, thereby driving down the price of hops of British growth. Your memorialists do not pretend to express any opinion whatever on the general subject of the protective or Customs duty, but they unhesitatingly condemn the principle acted upon in 1854, when that duty was temporarily reduced, thus tampering with the markets, and depriving the home-planter of the exceptionally enhanced price which he had been taught to rely upon as his only chance of compensation for the exhausting levies paid by him, year after year, in the shape of the Excise tax.

"Your memorialists need scarcely remind your Lordships that they were compelled to throw themselves upon the leniency of the Right Honourable Chancellor of the Exchequer in the earlier part of the present year, and to solicit the postponement of the collection of the duty of 1857. The right honourable gentleman, upon the urgent representations addressed to him, not only by the hop-planters, but by various other influential persons, ultimately yielded to the appeals thus made, and consented to postpone the collection of the duty of 1857; one-half until the present month (November), and the second half until February next. While expressing their gratitude for the consideration evinced by the Chancellor of the Exchequer, your memorialists deeply regret to state that, instead of finding themselves in an improved position, their difficulties are enhanced by the fact that the abundant growth of hops just gathered has still further lowered prices, while it casts upon the planters the burden of additional duty of £463,820. In Sussex alone the duty to be raised amounts to, in round figures, £120,000. To provide this sum very severe sacrifices must, under the most favourable circumstances, be undergone by all; whilst in a number of cases such sacrifices will entail the break-up and ruin of the planter.

"With such a state of things as above described, your memorialists feel that the time has arrived when it is imperative to impress upon your Lordships not only the justice, but the absolute necessity of the early repeal of the obnoxious tax which has wrought so much injury and entailed so much distress. In the words of a former memorial, 'it were easy to show how opposed to every sound financial principle, and consequently to wise and judicious legislation, is the imposition of such a duty; while evidence is at hand to prove how invariably all Chancellors of the Exchequer, even while they have accepted the uncertain amount it produced, have comparatively ignored the impost in their financial calculations, and repudiated it as a stable or reliable source of revenue. Were authorities desired on these points, your memorialists need simply refer your Lordships to the able and valuable sixteenth report of Commissioners of Excise Inquiry in 1835, and to the more recently expressed, but not less conclusive, opinions of various members of late governments. But your memorialists are unwilling to trespass upon your time by entering at length on such matters. On the contrary, your memorialists rest satisfied that your Lordships will not fail to give to the few brief facts that have been adduced your earnest and impartial consideration; they rely alike on the justice of their case and on the natural desire of all good governments to set industry free from oppressive and injurious restrictions. All that the hop planters ask is to be allowed to carry on their trade unfettered by the shackles of excise regulations, and unburdened by the pressure of duties which cramp their energies, cripple their best exertions, and defeat their honest industry. They feel—and they are assured that your Lordships will feel—that a tax which runs counter to the beneficent design of Providence—a tax which causes the agriculturist to welcome scarcity as a blessing, and which converts abundance into a curse, can neither be sound in principle nor successful in practice, and that your Lordships will not fail to listen to the prayer of this memorial, nor permit the coming session of Parliament to pass without making some provision for either the immediate or early, if gradual, repeal of the Excise Duty on Hops.

"And your memorialists, as in duty bound, will ever pray," &c., &c.

THE VALUE OF WHEAT AS FOOD FOR CATTLE.

Sir,—The question of "how to produce the most meat from a given value of food" is always one which will meet the attention of the farmers of England; and at the present period every farmer is looking about him to get some profit out of his stock, to compensate for the reduced price at which he is obliged to sell his corn.

I venture to offer you my experience on the value of *wheat* as the *cheapest and best food* you can at the present time consume, for grazing bullocks and pigs. I have consumed a large quantity of this grain since harvest, and I never had my cattle or pigs do better. I should recommend my brother-farmers to boil it, as it is more nutritious in that form than any other.

A peck of wheat per day will graze an ox, with the addition of a small quantity of root, faster than the same *value of the best linseed cake* you can buy. I am also feeding all my cart-horses upon it, and never saw them look better, or kept them at less cost.

Independently of the advantage of consuming our own produce, and save the cartage to and fro, we keep our money at home, instead of spending it to maintain and enrich foreign countries.

If the farmers of England will act more upon this principle, in consuming their own produce, I will engage to say that we shall produce meat at a more reasonable price than it has hitherto left our yards, and at the same time enhance the value of our own stable produce. I know a great many farmers feeding stock of all kinds on wheat, and I should be glad to hear their opinion of its success. If we wanted a scientific guide of this proposition being practicable, there is evidence enough in the various statistics on nutrition, of wheat containing more fattening property in a given weight than any other food.

I am, sir, your obedient servant,

Oct. 28, 1858. West Suffolk.

THE INTRODUCTION OF EUROPEAN ANIMALS INTO AUSTRALIA.

The extended introduction of useful animals into our Colonial possessions, occupies, we are glad to perceive, a large share of public attention, and will, we hope, lead to ultimate beneficial results.

The columns of the *Times*, which are usually available during the Parliamentary recess for the discussion of topics of social and general interest, have recently been made use of by Mr. Edward Wilson, of Melbourne, who, in a very sensible letter, brings prominently forward the importance of the introduction and diffusion of European animals over the Australian continent and islands. Without following Mr. Wilson in the poetry of his subject, when he inquires, "Why should the heart of our ploughmen not be gladdened by the song of the skylark ? and why should the daughter of Australia, as she lingers with her lover upon a moonlight evening, be deprived of one more felicity, one more topic of conversation, in the nightingale perched in the neighbouring thicket ?" we may confine ourselves to the utilitarian and practical point of view.

When we see what has been already done in Australia for the comfort and sustenance of man, there is ample encouragement for further spirited exertion. The country, soil, and climate are highly favourable to the spread and support of living creatures. "It is but the other day," remarks Mr. Wilson, "that we got the sheep ; yet we already supply Great Britain with the chief portion of her finer wools. The first cow was imported within the memory of living man ; and now vast herds roam over millions of acres, from Wide Bay to South Australia, and good judges are beginning to ask whether the colonial cattle will not bear a favourable comparison with the English average. We have got the horse, unrivalled in the whole world for his powers of endurance ; for were the deeds of our grass-fed stock-horses but whispered within your well-kept English stables the narrative would be roared down by a general chorus of incredulous horse laughter. The 'time' of our races would compare not very unfavourably with your own. And thus, with the dog, cat, pig, domestic fowl, duck, rabbit, pigeon, down to our old friends the common house-rat and mouse, which, with their own amusing pertinacity, stick by us with a fidelity worthy of a better cause, and, multiplying exceedingly among us, give a home-aspect to our colonial houses in their own ingenious and significant style."

The demand for mutton and beef and pork will lead to improved breeds of these live stock. Poultry, which have been little attended to, will greatly increase, in order to keep pace with the demand. Turkeys, we perceive, are fetching 25s., geese 10s. to 12s., ducks 6s., and fowls 5s. a-head in the Melbourne market. Dairy produce is also brought to market on a very limited scale, or such prices as these would not be realized in an old colony—fresh butter 3s. 6d a pound, milk 1s. a quart, and eggs 3s. 6d. a dozen. All the cheese consumed, is also imported. The absence of good roads, and the expense of transport from distant farms to the town, has, doubtless, had something to do with prices and supply. But the extension of railways and common roads, the water communication by steam on the Murray river, and other tributary streams now available, will greatly facilitate the forwarding of dairy produce to market, both to Adelaide and Melbourne.

In the matter of horses, of which Mr. Wilson speaks so favourably, the demand for them for India, and increased local wants which population brings with it, will lead to great extension of horse-breeding.

It appears that the flock of alpacas for Victoria are to be sent out in the Goddess, which will sail in a few days. They are under the charge of a competent attendant, obtained from the Zoological Gardens. There is no doubt other introductions of new animals will follow. The Angora, or Thibet goat, which the Cape colonists and the South Australians are now trying to acclimatise, should also be introduced into Victoria. We pointed out a few months ago the great importance of these efforts for the future of Australia. It is a great disgrace that the camel has never yet been introduced into Australia. What an admirable beast of burden it would prove for the use of the explorer in the interior deserts, which have hitherto proved so fatal a barrier to progress and communication across the Continent ! The animal could be obtained very cheaply in Algeria, Tunis, or by way of the Red Sea. The colony of Victoria has ample funds at disposal ; and what a benefit would a thousand pounds or two be, laid out for such a purpose, conjointly with the colony of South Australia, on public grounds, for the introduction of the camel, especially for exploring purposes ! We should then not imperil the lives of those bold explorers who go forth to trace out the unknown parts of that great island-continent, destined to play hereafter a prominent part in the roll of history, and whose coasts are now being rapidly filled up with population, while sheep and cattle are depastured by millions over its widely-extended plains.

Other suggestions are thrown out by Mr. Wilson deserving notice ; and certainly there is no reason why the table of the colonist should not be supplied with an occasional hare or pheasant, or why the alderman of the antipodes should not have his salmon cutlet, or his slice of venison, as well as his English *confrere*. The introduction of game-birds has not yet been very successful ; but then the attempts made have been only partial, and on a limited scale. It is of no use to turn adrift a dozen pheasants in the woods, and to call that trying an experiment, in the proper acceptation of the term. The game of Australia is at present very limited, and getting more so, as the natives depend entirely upon them for their support. Kangaroo-tail soup is not bad; and the popular colonial dish called a "steamer," which it furnishes, is well known. The flesh of the wombat, the bandicoot, and even of the opossum, may do for the bushman. The flesh of the emu is passably good; but this bird, the kangaroo, and the other native animals, are becoming rare as settlement advances, a war of extermination seeming to have been declared against them.

It is satisfactory to find that a zoological society has been formed at Melbourne, which has received from the Government a valuable tract of land, and a grant of £3,000, for the introduction of new animals.

Besides the broad question of interest and profit to be gained by individuals in this movement, we heartily concur in the desire "to see the good things of the earth spread as rapidly as possible over every portion of its surface, and to find every reasonable effort made to multiply, as far as can be, the legitimate enjoyments of mankind."

FARMYARD DUNG.

Mr. Hudson, of Castleacre, Norfolk, states the fact, from his own experience, that the quality of farmyard dung is improved by an exposure of months on the surface of the ground; and that the crops are better from dung that has been exposed, than on lands in which the dung has been covered in the usual moist and half-rotted condition. This observation is not quite new, though but little known; and when mentioned, it has been completely smothered by the overwhelming weight of the established dogma on the use of farmyard dung. My own experience is able to confirm the statement of Mr. Hudson, during a long and very extensive practice in using farm dung on clay fallows, for wheat. During two years, the heap of dung, of winter preparation, was not sufficient to manure the field, and a quantity was supplied from the stable door, consisting in dry straws and warm fæces of the horse, with some stems of vetches that were used as soiling food. The application was truly rough dung, and lay on the land, mostly uncovered by the plough, from August to October, when the seed-furrow failed to cover the dung that was somewhat reduced from the condition when applied. The harrows pulled it into smaller fragments, which lay on the surface during winter, bleached by the rains, washed by the snows, dried by the sun and winds of March and April, when the grass seeds were sown, of which the tilth tore into shreds the weather-beaten dung of straws and excrements, and pressed the remnants into the ground by a heavy rolling. A most choice bed was formed for the grass seeds, in which they throve most vigorously, being a very finely comminuted mixture of pulverized alluvial earth with the minute shreds of the dung. On these grounds, the wheat crop was superior to the other parts of the field, being earlier in growth from the first vegetation of the Spring, more dark-green in the colour of the leaves spreading closely over the ground, more numerous and stronger in the stems, and the stocks of ripe crop in a greater number at harvest. The superiority was most evident, during the season, from a distant entry into the field. The succession of two years establishes a fact under similar circumstances, and confirms Mr. Hudson's statement.

A very extensive experience of turnip farming in the celebrated counties of Roxburgh and Northumberland, affording many observations, led me to suppose that farmyard dung was unnecessarily fermented in heaps, and that the fresh condition was superior, at least equal in effect. In four cases, the superiority was most evident, under my own inspection and management—on the clayey loams of Leicestershire, on the iron sandy soils of Surrey, and on the wet poachy earths of Breconshire, in South Wales, which recumb upon, and are derived from, the upper horizontal layer of the old red sandstone. These localities afforded a sufficient variation of soil and climate to establish a fact, which consisted in fresh dung being lifted from the door of the cowshed, laid in drills in the usual quantity, and producing a very superior crop of turnips that was very evident and most marked to any observation. This result confirms Mr. Mechi's observation, that "the days of dungheaps are numbered." I have, for many years, recommended that all straws used for litter be cut into short lengths by the steam power of the thrashing machinery, in order to be conveniently covered in the drills; and all farmyard dung be applied in the fresh condition of straws and fæces, mixed and moderately saturated with liquid excrements.

Mr. Hudson's observation is very much strengthened by the bean farming of East Lothian, the crack county of Scotland. The land is partially wrought in February and March, drills are opened as for green crops, rough but well moistened farmyard dung is spread along the intervals, the beans are sown, and the drills are reversed. During these operations, the weather, being unsteady at that early season, often interrupts the progress, and leaves the farmyard dung lying in heaps, and even spread along the drills, exposed to every change of weather—washed by the rain and snow, bleached by the frost, and dried by the strong winds, for many weeks: the crop of beans has been, in every case, superior to the lands manured in the usual way.

The superior crop of wheat from rough strawy fresh dung, that lay on the surface over Winter, and operated as a top-dressing in the Spring, led me to conceive the idea that all farmyard dung, now applied to clay fallows in Autumn, or in the late Summer, be laid on the young wheat crops in March, as a top-dressing, by means of light iron waggons running on moveable timber railways. The dung must be very evenly spread over the surface, the lumps of dung very minutely broken, harrowed when dry, and rolled into the ground with the grass seeds, which will find a most agreeable bed of mixed earth and dung in a fine comminution. Small seeds require a correspondingly pulverized soil.

All the above statements clash with the doctrines of chemistry, and are against even the most approved and settled practice: but facts are stubborn things. Every art has its own peculiar philosophy, is advanced by its own facts and observations, and not by the adjuncts of cognate or alien sciences, which are subject to other laws, and regulated by different circumstances. The knowledge of astronomy gives no command over the heavenly bodies; that of botany does not command the structure of plants; that of mineralogy does not unfold the constitution of soils, so as to better manage the cultivation; nor is chemistry able to direct any processes of advantage under the vast variety of influences under which agriculture is performed. All these sciences are very beautiful in themselves; the application is a widely different question. The science of any art is the systematized experience of it, collected from the best authorities, and founded on the legitimate facts of observation and experience.

Four times I have sent to agricultural societies, as an "essay on any other agricultural subject," my plan of laying farmyard dung on young wheats, as a top-dressing, in March; and it receives the usual reception of such things—a silent neglect, probably being below notice, or beyond comprehension. If this article meets the eye of Mr. Hudson, perhaps he may be able and willing to support my statement, as I have corroborated his; at any rate, ideas may be compared, and results ascertained. From "Science with practice," the motto of the Royal English Agricultural Society would be well changed into "Practice with science," or better into "Enlightened practice, with its own science." When Mr. Hudson's and my own statements become established practice, chemistry will set about explaining the principles on which it is founded, forming not the *avant courier*, but the rear guard of progress, as has ever been the case. When facts have become an adopted practice, the principles avail but little, unless the development leads to a better performance, which has never yet occurred.

J. D.

FARMING POOR LAND HIGH FOR PROFIT v. FARMING LAND AT A LOSS.

SIR,—The celebrated Mr. Bakewell, of Dishley, Leicestershire, was heard to say that the road for a farmer to get rich was to breed the best kind of cattle, sheep, and horses, and the road to grow poor was to breed the worst of their kind: as the best consume no more food than the worst. Good farming, said Mr. B., was getting a dinner for your appetite, whilst bad farming merely gains an appetite for a dinner. Wonders are yet left to be done by judicious crossing of cattle and sheep for profit. There is a vast deal of useful and profitable information to be gleaned from the *Farmer's Magazine*. Common sense says that the black water running from farm yards in waste, to manure the sea, is monstrous; and the sewage of London running into the Thames is a bad example for the English farmers to look at. Nay, it makes wise men wonder and good men grieve at the folly and loss in manure, whilst we are fetching fowls' dung thousands of miles to manure the British soil. Cutting zig-zag fences and serpentine brooks straight, is the road to profit. Converting a great deal of cake and corn into meat is profitable farming indirect for landlord and tenant. Folding sheep upon a dead fallow from a poor grass close is not profitable to the landlord. It is clear bad landlords make bad tenants for the want of tenant-right, *alias* justice.

Great crops of weeds drive a man from his farm, and there is no profit in growing great, high, and wide hedges; but it is profitable to make your wet land dry by draining, and irrigate all the land you can: water meadows are profitable. Model farms are very well, but model landlords are still better. But the farmers of England require the law of tenant-right, *alias* justice, to bind those who are not model landlords.

SAMUEL ARNSBY.

Millfield, Peterborough, Nov. 3, 1858.

MONEY PRIZES, OR, CERTIFICATES OF MERIT.—THE BATH AND WEST OF ENGLAND SOCIETY.

At the last Council Meeting of the Bath and West of England Society, "Mr. S. Pitman brought up the Report of the Implement Prize Sheet Committee, who had, in obedience to the wishes of the Council, again considered the subject of the annual trials of implements, and the expediency of awarding two classes of certificates of merit in lieu of money prizes. The Committee now strongly recommend that the system of money prizes should be abolished, and the report was received and adopted by the Council." It will strike every one as a peculiar omission that this said Report was not published with the other proceedings of the day. There could scarcely be a more interesting document offered for the consideration of the agricultural world. Whence comes it that the prize system, after doing so much good, is now so decisively condemned? Pray enumerate to us the irremediable ills and crimes associated with its continuance. Let us, moreover, only give due honour to those to whom honour is due. Who were the discoverers and successful assailants of these monstrous abuses? Were they the members of the Society that complained? Did the judges volunteer to denounce the impracticability of money prizes? Was it the general body of exhibitors who objected? Did the farmers and visitors in the show-yard find fault with the system? Or, was it the close observation of the Implement Committee itself that has led to so important an alteration in the future meetings of the Society?

Then, again, what are the promised advantages of certificates of merit over money prizes? The great want, the one point to be improved on, in our agricultural gatherings, is the better trials of the machinery. More time and more scrutiny are required to test them. The Royal Agricultural Society of England has already arrived at this by the adoption of the triennial plan, but with, of course, the usual series of premiums to be awarded on an adjudication being agreed to. The Implement Committee of the West of England Society, we are sorry to say, refer in no way—at least so far as we are allowed to hear—to any such annual division of the entries, but simply depend on the assumed superiority of their Certificate of Merit. In what can this excel? Surely no one will be bold enough to say that a certificate of merit will ensure a fairer trial than a money prize! But "these money prizes are not wanted, the implement makers will not have them, or would rather be without them." Seriously, we very much question this. A few great firms who have been taking money prizes for years past, and at times be it remembered when the trials were not half so good, nor the judges anything like so well up to their work as they now are—may be well content to remain as they are. But are there no rising men to be encouraged—no young blood to be drawn out, even in the limits of the West of England territory? We can answer from our own experience that there are many such, to whom the award of a money premium would be in every way a consideration. Assume that some people refuse to come amongst you—are getting, in fact, rather above taking your money; is that any reason you should not continue to encourage, or that you should despair of gradually making up a good show from, your own strength? There is hardly one of the leviathans but has had a beginning—but that has increased his trade, improved his manufactures, and realized his present eminence, by his attendance and competition at our great agricultural meetings.

As for any benefit arising from the change, we believe the fact of having money to award has made the judges especially careful in their decisions; whereas we fear mere certificates of merit will soon come to mean little or nothing. Of course they will be allowed to distribute as many as they like; and A will have his certificate for this, and B for that, and C for something else. At some of the small commercial schools there is a very similar plan in practice for increasing the patronage of the institution. Master Brown takes home a testimonial for writing, Master Jones for reading, and Master Robinson—a terrible blockhead, who can neither read nor write—has one for "general good conduct." Every boy must have a testimonial of some sort, or his parents will never be satisfied. It will be very much the same at the West of England meetings, or the parents will never be satisfied. The most palpable failure must at any rate be a meritorious attempt, and so of course there will be a certificate accordingly. It is, after all, but the old principle of the twelfth-cake lotteries—all prizes and no blanks; although but a taste or so of what you get will most probably make you soon very sick of it. If, however, the certificate of merit is good one way, it must surely be so another. Let the Society at least be consistent, and save their money in every shape. Let them give no more prizes for stock—only certificates of merit—and we promise that in two or three years or so they will be spared all further trouble in the arrangements of their meetings.

We hold the total abolition of the system of money prizes to be nothing more nor less than a dead lock to improvement. With wholesale first or second-class certificates of merit, be they one or the other, the character of these meetings will quickly sink into mere advertising fairs. This is very good, and that is very good; and so the man with the loudest voice or the cheapest wares will do the most business. But, again, we say let us have this Report. So far, for the very life of us, we cannot understand why, if we are to have better and better trials, these should not end in the award of a money-prize quite as reasonably as in a certificate of merit. Will Mr. Pitman and his committee enlighten us? What is the crime? Does a prize in money lead to a spirit of gambling? Should we look at the matter in a strictly moral point of view, and so only play, as little girls do at cards, for "love," kisses, and comfits? The committee, however, acted, no doubt, on evidence brought before them—without, perhaps, sufficiently regarding the object of those by whom it was supplied. We should hardly think much of this was volunteered, by the general body of their exhibitors, or their own immediate supporters, who enter as freely as ever. Or, to go to a higher authority, it could scarcely have come from the Judges. Such as we had the opportunity of consulting at Cardiff were all for upholding a system that had directly tended to so much good; while, the very year previous to this, what did one of the best and most energetic of these publicly declare at Newton? Amongst other things, in responding to the toast of the Judges, Mr. Caldwell said: "This meeting proved there were efficient men in the West as well as the East....It appeared to him that the big makers had begun to be afraid of the Devonshire men....There were five or six leading manufacturers who would not come into the West. He could only put it down to Devon being too good for them....Such societies as the Bath and West of England Society has made little men into big men, by giving prizes for the machines they turned out.... These big men then turned on the agricultural societies, defied them, and said 'We will have a show of our own.' But we also could combine—we even here in South Devon might beat them in their own implements....The South Devon exhibitors had a great deal of energy, and what was at the bottom of most Englishmen, more 'pluck' than there was in any other fellow in the world." Our own report of this meeting adds that "Mr. Caldwell was cheered and re-cheered at every sentence, and that his was the speech of the evening." The whole country certainly went with Mr. Caldwell at Newton. But times appear to have terribly changed. And we ask, for the information of the agricultural world generally, on what showing and at whose prompting, has an important society like the West of England pronounced the system of money-prizes for implements impolitic and unworthy of further countenance?

THE MONMOUTHSHIRE AGRICULTURAL SOCIETIES.

Sir,—At the annual meeting of the Abergavenny Agricultural Society, held last week, a proposal was hastily mooted and somewhat plausibly supported, for amalgamating the agricultural societies of Abergavenny, Monmouth, and Chepstow, and the Usk Farmers' Club, into one county association, which should hold its annual meetings alternately in different parts of the county, the places chosen being the most accessible and convenient for the purpose.

I will, if you will grant me space, attempt briefly to answer the arguments used in favour of the removal, and show why, in my opinion, any attempt to carry out the plan would be unwise, if not impracticable.

The starter of the project, Mr. Jones, of Clytha, adduced no argument in its favour, but simply said he deemed it advisable. No doubt he believed the adoption of his plan would be beneficial to the backward state of agriculture in Monmouthshire; but that belief is not argument. The respected Chairman, Colonel Clifford, took up the hint, and advocated it on the grounds that *if* all the subscriptions now contributed to the four societies were thrown into one list, the county association would be able to offer such considerable prizes that men would be willing to use trouble and expense to qualify their stock and farms for competition. This argument is in itself unanswerable; but the little conjunction "if" upsets it all, and for this reason: the men who subscribe to the four societies are in a great many instances the same, and the proof of this is that they are all really well supported by the county gentry. We may find the same names in each list, and they find it expedient to subscribe to each because they have an interest in each locality. But if any person were to suppose that because there are now four societies in the county, he would be able to obtain all the money subscribed to them to throw into one lump, I fear that he would be grievously undeceived when he attempted to collect the cash.

But there are other drawbacks to the adoption of the plan. Even if this impossible fund for giving very large prizes could be raised, the expense of sending stock such long distances would, after all, make it unprofitable even to the winners; and as the successful must bear a small proportion to the unsuccessful, the inevitability of this conclusion would keep farmers and their stock away. But even putting this difficulty out of sight, and again supposing that a large amalgamated fund could be accumulated, and that a large and vigorous competition could be secured, the small towns of Monmouthshire have no permanent provision for the accommodation of unwonted numbers of either men or beasts. Yet the former will of course see that themselves and their stock can be properly provided for before they venture from home; and to make the scheme practicable, and to obtain a large show, a great portion of the fund would have to be expended in making these temporary arrangements, leaving only a residue for distribution in the shape of prizes. So that the plan would fall through in either of these directions.

There is doubtless sufficient energy in the inhabitants of the Principality to overcome all these obstacles, if there were reasonable occasion; but in this instance no necessity for the change has been shown. Then look at what may be said *per contra*:

Each of the agricultural societies proposed to be overthrown —Abergavenny, Monmouth, and Chepstow—has at present a good show of its own, promoting much and rapid improvement in the breeding of cattle and sheep, and in the general cultivation of the soil, according to the mode of the present day. The Usk Farmers' Club fosters one of the best ploughing matches in all England, and does material good in encouraging the workmen of its members to excel in some of the most useful of all the branches of agriculture. Why, then, arrest them in their tangible and sure progress, to work a change which would be a very doubtful advantage? why overthrow the work of much time and trouble to substitute a plan which, I have attempted to show, not only would substitute no greater advantages, but would actually break down from its own cumbrousness, and natural disadvantages which none can control?

Should success attend the efforts now being made to establish a Welsh Royal Agricultural Society, it would effect all the objects which could be arrived at by those who would advocate this amalgamation scheme; but should these efforts fail, and the R. W. A. S. project fall to the ground, it must appear that Monmouthshire alone could not master difficulties to which the united Principality had to succumb.

I really think there is no tenable ground on which Mr. Jones's plan can be sustained; and I would suggest that unless some feasible reasons can be adduced in its favour, the project should be allowed to drop back into the obscurity from which it need never have been lifted.

November 2, 1858. NEMO.

—Hereford Times.

[We give this letter on the *audi alteram partem* principle. An argument *against* the amalgamation of district societies is now of very rare occurrence.—ED. F.M.]

GARDEN GROUND *v.* ALLOTMENT.

SIR,—I have read with considerable interest the report of the late discussion at the "London Farmers' Club," on the "Allotment System, its uses and abuses." Residing in a county where nearly every village has a portion of arable land let out in small plots for cultivation, I can testify that the system has generally worked well, excepting where the land has been of a wet, cold, clayey nature, and a considerable distance from the village; in such cases the occupation, although not given up, has been attended with so many disadvantages as to be of very little profit to the occupier.

It is not my intention (were I capable of doing so) to add any fresh arguments in favour of the system. The speakers on the occasion have fully discussed the question, and pointed out some of its liabilities to be abused. My principal object is to call the attention of landed proprietors, land agents, and tenant farmers to a subject of more real value to the agricultural labourer than 20 poles of land in the allotment field, viz., the desirableness of the same portion of land being contiguous to his cottage as garden ground.

The allotment system seems to me to be more adapted for the artizan than for the agricultural labourer. The man who works in the workshop from 12 to 14 hours per day is benefitted physically by a half-mile walk to his allotment. For him a change of work is refreshing, and the shoemaker shoulders his fork and basket of potatoes on a summer's evening with a ready and willing mind. But the agricultural labourer, who starts at early morn one or two miles to the field of labour, performs his daily toil, and returns home in the evening under considerable physical exhaustion, sits down to the tea-table with thankfulness, and does not very much relish the thought that the children have filled the wheelbarrow to its very brim with manure, under the expectation that he has again to put his shoulder to the wheel, and accompany them to the allotment, with the understanding that they are all to ride back in the same conveyance.

I have known several of the best agricultural labourers hire the digging-up of their allotments, who have told me that they could not do it in over-hours, especially when the land has been at a considerable distance from their own residence.

Our agricultural labourers have very much improved since the alteration of the poor laws, and the increasing demand for labour; and it is very desirable, in the erection of new cottages in agricultural villages, to attach thereto about 20 poles of garden ground.

We have not yet recovered from the baneful effects of the "Old Poor Laws" upon the social economy of village life. Under the impression that a working staff of labourers residing on the estate was a parochial burden, means were taken to depopulate the parish: cottages were pulled down, and the poor driven to the neighbouring villages, who thereby caused an extra demand for houses, at one shilling per week (the limits of the agricultural purse for a home); cottages were built on the most economical plan to meet the demand, possessing no suitable accommodation for a family; parents and children all huddled together, exerting a baneful effect on the morality and conduct of the rising race. What has been the result? We now find our large villages crowded with wretched dwellings for the poor, and the land in some parishes left without a working staff of labourers, men having to travel two or three miles to their daily labour, and the tenantry having to pay for labour in an exhausted condition.

It becomes now desirable that cottages should be erected in situations suitable to the locality of labour. Our Lodge Farm Homestead would be improved by the addition of houses suitable for housekeepers, shepherds, ploughmen, &c., &c. A resident staff of willing labourers residing on the estate should now be no longer dreaded as a parochial nuisance, but hailed and provided for as a valuable auxiliary; a comfortable row of cottages, with 20 poles of garden ground attached to each, would be as pleasant to the sight of the proprietor as the stately timbers his forefathers planted, or the old church which contains the remains of an old and honoured race.

Having trespassed much longer than I intended on your columns, allow me in conclusion to express the gratification I feel in the knowledge that so many persons interested in the management of landed property meet together for the discussion of "Social Science" relative to agricultural pursuits; and also that you give those of us who tarry at home the opportunity of reading your reports.

I remain your obedient servant,
WILLIAM BEARN.

Finedon Hill, near Higham Ferrers, Nov. 12th, 1858.

THE GETTING UP AND STORING OF MANGOLD WURZEL.

Writing directions for farm management, solely for the use of those lucky occupiers whose land is all drained, whose roads are perfect, and whose premises are built with every convenience recommended in the "Cyclopædia," may prove of considerable help to the few. The great body of farmers, however, are still left to take short cuts and make-shifts of their own—contrived to suit less favourable circumstances, though burdening them with extra expense and delay, just because the landowner has neglected to provide accommodation for his tenant.

Getting up mangolds is all very well and expeditious until your root-houses are packed full, and a tedious labour and anxious operation with those innumerable cultivators who are compelled to store on the bare ground in yard or open field—unless, indeed, on a nice dry soil, where the roots are to be eaten by sheep on the spot where they grew, in which case you may throw them into heaps by hand, as you do swedes, and earth them up. Most people, however, store their mangolds in large quantities together, either at the homestead or in the field; and there are various ways of doing it.

If you please, you may pull up the roots before they are topped; in which case they have not only to be lifted in the hand twice over, but the cutting off the top with the knife runs great risk of injuring the root altogether. The best plan is to twist off the tops while the roots are still standing; and then let the carts follow, the fillers throwing the mangolds into the carts as they pull them up. We have just secured a crop of 15 acres, having 30 tons weight per acre, ascertained by weighing the produce of 4 perches fairly chosen in an average part of the field. We piled the roots in a "pit," "grave," or "clamp," on the level ground; the heap having a triangular section of 7 or 8 feet wide at bottom, with an altitude of some 5 feet. This embankment of "long reds" and "yellows" is more than 300 yards long, extending two-thirds the length of the field, and for a considerable distance along the headland nearest the homestead, the long mound being placed as nearly as possible down the middle of the field. By this arrangement the least average distance for carting was obtained—horses being busily engaged at the time in wheat-sowing; and three horses, with suitable carts, have carried all our 450 tons of mangold in nine days, excluding two days' delay by wet weather. Women and boys did the topping, men and women filled, one lad drove the carts to and for a nd two men packed the heap; and the expense, at the rate of 2s. a day for a man, 1s. for a woman, and 2s. 6d. for a horse's day's work, amounted to 17s. per acre, or about 6½d. per ton. It so happens that we have plenty of soil to dig down into for covering the heap, and therefore we have simply thatched every night with six or eight inches' thickness of straw the portion of root piled during each day; and after leaving the completed heap for a few days to dry itself from the fall of rain which soused down upon it last week, we are now earthing-up. Not quite to the apex, however, as the roots will begin to ferment and sweat themselves into a dangerous heat if totally closed up from the air. We sod up a thickness of two feet of earth above the straw at the base, lessening to a foot thickness near the top, where a shoulder is left to hold up the soil that in ten days' time will finally close up the ridge. The cost of this operation (when the top is closed up) comes to about 5s. for each chain length—that is, 70s. altogether; or 4s. 8d. per acre, or 1¾d. per ton. The total expense of topping, carting, and storing the mangold wurzel has thus been about a guinea an acre, or 8¼d. per ton. Of course, when merely flung into small heaps, and earthed up ready to be eaten by sheep folded for the purpose, the securing of the crop from frost is a far cheaper matter. But even spending a guinea an acre in harvesting the crop, we like our 30 tons an acre of mangolds better than our 15 tons an acre of swedes, which have had similar cultivation.

Where there may be a difficulty in this manner of storing, the roots may be secured in the fashion described in the Cyclopædia: Set up rows of hurdles nine feet apart, and backing the loaded carts between them, tilt the roots out, pile them up to the height of the hurdles, and in a roof-like form above that height. Another row may be made within a yard of this one; and any width and height of ground that may be desired may be covered with rows in this way. A very little straw is to be placed between the hurdles and the roots; and a good thickness, say twelve inches, of straw is to be placed and roughly thatched over them: the bushy eaves of this thatch interlocking over the intervals between the rows furnish ample protection against frost. The three great requisites to safety—sufficient ventilation, with protection against rain and frost—are thus cheaply and efficiently secured.

THE IMPROVEMENT OF THE SOCIAL CONDITION OF THE AGRICULTURAL LABOURER.

A wide-spread subject, truly, to discuss in some half-a-dozen articles; the whole of which would afford space but scant enough, to glance at one only of its many important elements. Our notes, therefore, must be taken as merely initiative of that fuller discussion of the subject which may at some future time be entered upon; openings-up, simply, of points of view, the position of which may be noted down, and returned to at a future time, when the now hasty glance may be changed for the steady investigation then of the whole subject in its entirety—diggings, so to speak, in the quarry of inquiry for blocks; one fitted for one part, another for another of the future structure; laid down apparently at random, but nevertheless placed so as to be readily accessible when the labour of the digger is exchanged for that of the builder.

Claiming, then, for our remarks no higher position than this, we proceed to note, that what has yet to be done to raise the social *status* of our labourers to a higher point than the one at which we find it nearly universally existent amongst us now, must be the work not of one class only, the landlord or the employer, but of the two classes—the landlord and the labourer, the employer and the employed. If any real progress is to be made, there must be a mutuality of interest, and of dependence one upon the other. We have as little sympathy for that school of philanthropists who would do all for the labourer, and allow him to do nothing for himself, as for that school of political economists who would do nothing for the labourer, allowing him to do all for himself—careless, indeed, whether he does anything or not, so that the laws or rules of that "economy" be observed which they worship: an "economy" which, to our thinking, is not at all christian in spirit or hopeful in its results. This statement, as to the necessity for a mutuality of interest being cultivated, brings us at once to that important matter to which a variety of circumstances has lately given the prominence which it fully deserves: we mean the question as to the sympathy, or, to speak more truly perhaps, the want of it, between the employer and the employed. This sympathy must be cultivated till the bond of interest be strengthened between the workman with his horny hands of toil, and the man whose brain-labour maintains the hand-labour, and pays for its toil—till the war between class and class is for ever over; till God's truth is everywhere prevalent, that all men are brothers, joined together with the link of the nearest interest and the closest dependence, and the devil's lie no more believed in as a truth, that it is for the good of one class to wish for and rejoice in the evil that happens to the others; till we are all members of that glorious community, the guiding principles of which shall be those of the most blissful of all democracies, as it is the most gorgeous of all aristocracies—which makes us at one and the same time equal, the servant with the master, and yet all kings, brothers in that family, kings in that kingdom which is yet to come. This sympathy must be cultivated till all "fellow-citizens unite with common sympathies—Saxon spirits and Christian hearts—encouraging every legitimate occasion of kindly or profitable intercourse; diligent in the several departments of labour, wisely distributed; in a rivalry, not of the thorn and the briar, which shall show the sharpest prickle, but of the vine with the olive, which shall bear the richest fruit." Nor is the cultivation of this mutual sympathy—(for if it is to be healthy and enduring, it must not be one-sided)—difficult to be followed out, after all. The real difficulty is in the beginning—as to who is to initiate the new order of things. It is a deplorable feature connected with a bad system which has been of long continuance, that it renders men unfit for the hearty reception of a better. And the two classes, the employer and the employed, have so long in this country been estranged, and taught to look upon each other in great measure as natural enemies, having interests totally at variance, that the difficulty we meet with, in inaugurating a new state of matters, is, that their habits and feelings nearly all run in different channels, tending to widely different points. We believe that kindlier and lovelier feelings towards each other have of late been on the increase; but it will not do for each party to stand on the little mole-hill of his own real or fancied grievances, thinking it a mighty mountain, and say to his neighbour, "*Come.*" No: each must descend, and *go* towards the other. The advances must be mutual. The employer must cultivate a kindly interest in the affairs of the employed, and have more frequent *personal* intercourse with him. And, on the other hand, the employed must have a generous appreciation of this interest and those advances, and not ever be suspicious of intentions, and constantly attributing mean motives. We believe that there is a strong desire on the part of the employers generally throughout the country—and this increasing daily—to do justice to their employed; that they are ambitious to see the workman occupy his true position—to see him alive to the dignity of labour and the worth of moral manliness. But anxious as they are to see this, and to cultivate a closer intimacy, they are not seldom pained to find that all their advances are looked upon with distrust, and all their kindnesses viewed with suspicion. This must not be suffered to remain: the workman must on his part cultivate generous feelings, free himself from the trammels of prejudice—go meekly to the fountain of all truth, and dare to assert it, and live up to it, despite all his preconceived notions.

"What is really wanted," says a writer who has studied closely the question of the relation subsisting, or which should subsist, between the agriculturist and his employers, "is not a continued spinning of fine theories as to the relationship that ought practically to obtain between these powers linked yet separated; but some strongly and heartily-combined, truly thorough-going, and long-working moral frame-work, with power gathered from all right-hearted parties guided from on high, whose duty it shall be, and whose interest also it may be, to overcome those mischievous obstacles which, in the course of time and of change, have arisen between the outgoings of the relative concerns, duties, and feelings of the upper and hiring classes, and the sympathies of the lower and hired classes, for their social comfort and their highest interests." "If you would work up," says the same author to his agricultural readers, "the hearts of your labourers to serve you faithfully, and to back you under all circumstances, you must bear yourselves towards them, in your daily intercourse and dealings with them, in some such way and spirit as did your noble grandsires. The plan is a very short and simple one: *Do more of your business with them personally, and less of it delegatively;* for this was indeed their condescending yet truly dignified way; and never, I believe, was it encroached upon by their humble dependants. How could it? Their humble dependants had their hearts and their manners so politely trained by this way (the best high social training school of all) as rendered rude encroachment morally impossible." There can be little doubt that this *personal* interest and *personal* intercourse with the employed must be productive of beneficial results. We believe that many employers have no conception of the power and influence which they would obtain over their employed by going more frequently amongst them, sharing their griefs and partaking of their joys—dropping counsel and instruction, here a little, and there a little, even in the midst of their employment.

But the mutual sympathy which we advocate must be based on the broad and grand foundations of eternal truth. If it is to keep ever fresh and ever fair, it must have the preservative salt of a religious belief, a living faith mixed up with it. This is not the place to advocate sectarian views; nor, if it was, do our thoughts and feelings at all tend to that advocacy; but we believe that Christianity—*that* Christianity which is above all cant, and broader than any church—is all-powerful for the healing of the woes of nations and of the griefs and grievances of every class. It is that which will elevate the workman, and raise to still higher dignity the employer. It will purify and endear to the labourer the sanctities of home, and render powerless the attractions of the beer-shop. It will quicken alike in employer and employed the appreciation of the good that is in each other; while it will lead them to charitably pity, and endeavour to get rid of the evil, it will draw closer the bond of sympathy between them; it will refine their feelings and exalt their minds; it will unite them with the higher and the holier destinies of man by a golden chain which will reach to heaven. But, to aid in the spread of the principles of this renovating power, we must sink all our sectarian notions and sectarian prejudices—not that we need have less faith in our opinions respecting them, but that we shall require more charity towards those who differ with us—and unite in the anxious desire to show each in their daily walk the force of faith and the power of practice. We must be rivals in the spreading of that true liberty, which, while it respects the property of the rich, has a due regard to the privileges of the poor, and, while sternly repressing the liberty of sin, gives the freest exercise and the broadest platform to the cultivation of all that is lovely, pure, honest, and of good report; we must exercise that charity which, while it condemns the sin, spares the sinner; we must be more anxious to show to our neighbours, and those over whom we have influence, the force of a good example, than to endeavour to win them to be adherents to our personal opinions as to church and church government; we must think more of the spirit and less of the letter, and estimate the pith and kernel of Christianity more than all its conventionalities, its husks and outer integuments. Doing all this, we shall best secure the permanent establishment of that sympathy between employers and employed—based on principle, not upon policy—which will lead in time, and lead safely, to the establishment of those social reforms which we all profess anxiously to wait for.

In the first of our papers on this important subject we stated that the task of amelioration is that which will necessitate—if true and lasting progress is desired—the exertions of the employed as well as of the employers. There must be a mutual interest taken in the matter. We shall see, as we proceed, that in all the departments of progress which make up the measure of efficiency of this great question, both parties have something to do in it; that it does not devolve upon one to do all, the other complacently looking on, applauding or perhaps sneering the while. If property has its duties as well as its rights, let it not be forgotten that labour, while it has its rights, has its duties also. Take, for instance, the important department of improved cottages. Thus, while holding that it is the imperative duty, if not the wisest policy of the landlord, to erect cottages for his labourers, in which the decencies of life can be maintained and respected, as well as its comforts and amenities secured, we no less decidedly hold that it is the duty of the labourer who inhabits them to do all he can to maintain them in good repair; to refrain not only from the folly of wanton destruction, but from the cultivation of the habits of carelessness, which result in a deterioration of the property of others, as powerful almost as the destruction of wilfulness. This tender regard for the property of others, if cultivated for no higher reason, might be cultivated from motives of policy; for, doubtless, the employer will be less chary in doing what is usually called "something" for his tenant, if he finds *that* "something" carefully prevented from speedily becoming "nothing." All matters left to the care of the servant ought to be as jealously guarded as if they belonged to himself; and the motive for this should proceed from the highest of all sources, and should be inculcated upon all those with whom he has to do, and over whom he has authority. His children's conduct, he should ever remember, will, in all likelihood, be marked by the consistencies or stained by the follies of his own. All these should form important elements in that course of self-reform, or self-discipline, which the employed should place himself under, and without which he cannot honestly expect any permanent improvement to take place in his social position. Some departments of social reform may—nay, must (such, for instance, as this one of improved cottages now under consideration) —begin with, and be successfully inaugurated by, the employer; but their permanent disposition must depend upon the employed. Social reform, to be worth anything, must be supported, if not preceded, by self-reform. And this the employed are in honour bound to carry out, if they claim from the employer any help.

This question of the necessity for improved cottages for the labourer forms one important item in the consideration of the subject which forms the staple of our present paper. It, possibly, yields to none in importance; for it begins at the beginning, and affords the right sort of help to allow of the cultivation of the hearth and the home influence. But the subject has been pretty fully discussed in the series of papers on "Agricultural Education," Nos. 1 to 5, which we were privileged, some time ago, to lay before the readers of this Journal, and to which we beg to refer for the exposition of our opinions thereupon. We therefore pass on to the consideration of the question of education, the next great lever, with the aid of which we may hope—if it is rightly applied—to raise the social condition of the agricultural labourer.

And here, at the outset, let us state our belief that no mere scholastic education will be at all powerful in the way wished for, unless preceded by, or at least accompanied with, first, the *education of example*, in which the employer shall be the teacher; and, second, the *education of the home*, in which the employed shall be the teacher. Here, again, we find the mutuality of labour in this field of social cultivation exemplified. Let us examine the matter somewhat closely. And, first, as to the importance of the education of example; the employer being the teacher, and those employed under him being, we need not say, the taught. The importance of this kind of education has been, somehow, strangely overlooked. It is humiliating to think that the baseness, the utter hollowness and deceit of the notion, that we hope to get others to do, *not* as *we do* (for that may be all evil), but as we *tell* them to do, has not been seen through, and long ago exposed and for ever discarded. What cant—for it is cant of the meanest kind—to tell men that we expect them to be chaste and pure, honest and upright, when in our daily lives we may show them examples of the very opposite! If charity must begin at home, so must truth; the employers must be true to themselves, have the manliness to act what they would wish to see their employed do—not the hypocrisy to ask them to do what they will not or cannot do themselves. What notion of the worth of the precept they try to inculcate verbally only, must their workmen have, under such circumstances? They will see through the hollowness of the deceit; and ten to one but they will take it too gladly as an excuse to act the deceit themselves at their own time and in their own way, rather than be disgusted with it and fly from it; for we are more apt to plead the excuse of example for our doing of wrong, than the following after right, and the striving after justice and mercy. Nor is it likely that the example set by employers will be the less marked because they may not occupy the high places of influence as judges, legislators, or acknowledged teachers and preachers: on the contrary, it is just on this account that we conceive that the influence of their example will be all the stronger. It is only those who know the habits, feelings, and modes of thinking and judging, of the poor, who can appreciate the full force of the objections made too often by them, when the example of men of influence, as teachers and preachers and the like, is pointed out to their notice for their imitation: "Oh! it is their trade!" This peculiar mode of arriving at an estimate of the motives of those set over them in the places of instruction will require a long lease of high training to do away with; and it is just because the force of the example of those *appointed* to instruct is weakened by this feeling on the part of the poor, that such stress is laid upon the necessity of the employers showing a good example to the employed. We have a strong conviction—and all additions to an experience already pretty extended of the habits of the poor tends to enforce this, rather than to weaken it—that an immense amount of good will be effected in elevating their feelings and refining their mind, and so inducing them to look upwards and move onwards by the missionary efforts (so to speak) of employers showing in their daily walk that their principles are reflected in their practice, and those principles founded upon the eternal basis of right, justice, mercy and truth. "Individual action, in our own land, and within the circle of our families, friends, and neighbours—this is the true field, not only of each man's bountifulness, but also of his most effective influence. * * He who is not diligent in self-improvement, in vain essays to regenerate the world; whilst those who serve for patterns of any excellence, or for centres of any good in their own immediate sphere, are the most sure, though often silent and obscure, contributors to the welfare of the human race."

We may sing of "the good time coming"; but it will not come, depend upon it, till employers have thoroughly appreciated the privileges of their position, and have determined to show in their daily lives that they are teachers of the true—missionaries of the worthy and the good, and pioneers of that progress which is ever onwards and upwards; till they can demand sobriety from their servants, honesty from the husbandmen and handicraftsmen, prudence and purity from all under them, and demand it with the firmness which only a conviction can give them, that they themselves are prepared to show in their life and calling that they are sober, honest, pure, prudent, good, and true; that they can demand this, not in the inherent weakness of hypocrisy, but in the power of integrity and the strength of honesty. As the constant dropping of water wears away a stone, so will the persistent efforts of a good example shown by employers at all times and on all occasions — in the farm steading as well as in the house, beside the plough as beside the altar, in the fields as at the school or in the church, in the evidences of principles which "distil as the dew upon the gentle herb," as in the precepts which fall as "the latter rain" —ultimately exercise a beneficial influence on the employed, and wear out of them and rub from them the seeds of moral disease, and the stain of evil practices, till soundness of principle in them shall beget strength of mind, the pollution of life give way to its purity, and the darkness of understanding be lighted by the beams from the sun of righteousness, and beautified by the benignity of its smile. Then shall the employers and the employed be a band of brothers, fellow-workers in the field of this world's toil, soldiers in a good fight, led by one mind, influenced by one motive; whose war shall be with the elements, whose fields shall be glistening with the smiling corn, or green with the glorious labours of the husbandmen—a band of brothers, not the less united and true to their country because true to each other and to themselves, should the time ever come when the tumults of war and the shouts of invaders be heard; when they shall be called alike by duty and by patriotism to lay down the sickle and seize the sword, and fighting for their hearths and homes, bravely and truly win the peace which shall secure to them the opportunity of gaining triumphs better far than all the glittering gew-gaws of war—the Grand Crosses of Industry, which though they may bronze with the dews of heaven, and be soiled with the hands of toil, shall have no red rust of human gore to stain them, but be crowned with the laurels of peace, ever fresh and ever fair, and blessed with the blessings of plenty.

In our last paper we stated it as our belief that no scholastic education—taking this term in its generally received signification—will be at all powerful in effecting the elevation of the social condition of the agricultural labourer, till it is preceded by, or at least accompanied with, the "education of example" and the "education of the hearth and home"—the first having its rise with the employer, and the second with the employed. As regards the duties of the first, in carrying out the education of example, we have in the paper above alluded to gone somewhat fully into; it remains therefore for us to point out briefly the way in which the employed can carry out the education of the hearth and home.

We would, however, at the outset, have the reader to note that the machinery, by which this hearth-education is to be carried out, is not, nay, cannot in the nature of things be expected to be provided by the employed. Before hearth education can be begun, and home influence be exerted, it is essential that the home be provided and the comfort of the hearth secured. And here steps in the sanitary reformer, to do his offices and to explain the importance of his principles of action. What these are, and how best to be carried out into practice, we have endeavoured to show in the series of papers on *Agricultural Education*, which we contributed some time ago to this Journal, and to which in the last of the present series of papers reference was made. The importance of having a home, the arrangements of which shall not of necessity present that which will render nugatory all the lessons of worth and of purity which may be given by its hearth, is surely obvious to all. To our own remarks on this point, in the articles above alluded to, we add the following as supplementary, and as perhaps more suggestive and apposite, from the pen of a writer to whom the world is indebted for many fine thoughts and noble impulses: "Nor can we be surprised at the little fruit as yet seen to arise from the best of our school teaching, when we reflect on the evil influences which prevail in many of the homes, and when we know how all but impossible it is for the children to practise there those lessons of order, decency, and decorum which they learn at school. We see herein how much it behoves us to harmonize our plans for benefiting our neighbours, and to how little purpose we should spend our strength even in the best of education, if we acquiesce in the ascendancy of beer and gin, and if we are content to make little progress in that most important of all material reforms, which under the term "sanitary" includes at once the healthful and decent, and implies that every dwelling throughout the land should be meet for a Christian's home. * * * Where families are crowded together to excess, and much more where lodgers of all ages—men, women, and children—are tenants of the same apartment, privacy is out of the question, and decent self-respect is all but impossible. Where habits of decency are so hard to be put in practice, what can be expected but that profligacy shall abound? If it be impossible to have the home cleanly and sweet, how is it likely to prove attractive in competition with the tap-room close at hand? That which depresses health is apt to make the temper irritable; and where no one has a place, ever so small, to himself, the trials of temper must be manifold, and the temptation to angry words continual; and those tones and looks and smiles which render home, however homely, still always cheerful, must be rare. The lessons learned at school are defeated for want of scope for their exercise at home, if not also, as is not unfrequently the case, by want of sanitary arrangements in the school buildings. And after all that can be done by public institutions, whether schools for the young, almshouses for the aged, asylums for orphans, and hospitals for the sick, it must be remembered that the family and its home—these are of divine appointment; and it is here that the sick may best be nursed, here the young best trained, and the old best tended; and here also, if there were but room, the orphan best trained and cared for. * * * Not even church and school-building ought to take precedency of sanitary reform, in the estimation of the devout and the benevolent. It is well to increase the number of places of education, and of places of worship. But he does both at once, who makes even a single cottage meet for a Christian home. For the chief part of a child's real training consists in the home habits to which he is accustomed." To this admirable summary of the important benefits to be derived from attention to the homes of the labourers, nothing more need be added.

But if the machinery by which the education of the home, and the influence of the hearth can be aided, be provided by the employer, he has thereby a right and title to demand that the employed shall use it consistently and persistently—that the education of the home shall be of the best, and the influence of the hearth be of the holiest kind. To this end the employed must become convinced of the necessity of self-culture and self-control, that he may be able to cultivate the good in those under him and around him, and demand of them a like self-control. There must be no paltering with things in a double sense: he must work hard to win the truth, and to keep by it—to let it be seen that it influences his inmost thought, as well as that it is demonstrated in his outward practice—that he shall dare to think truth, as well as to speak it. All this he must do before he can aspire to be the teacher of his children, a true and real husband to his wife, and a kind warm-hearted help and comfort to his neighbours; ever remembering that he is responsible to that Providence who provides him with his daily bread, and that if he prays to be delivered from evil, he must not and dare not lead *himself* into temptation. While gladly following the good example shown him by his employers, he must shun the weakness and scorn the meanness of following the bad where it is shown him simply because it IS. By himself he must stand and fall. He must be ambitious to have the independence of the oak which buffets the storm as well as hails with gladness the sunshine, rather than the cowering closeness of the ivy which clings to it. Let him, aye,

> "Be up and doing
> With a heart for any fate:
> Still achieving, still pursuing,
> Learn to labour, and to wait."

Nor must he mislead himself, or be misled by others, into the belief that the little he has in his power will do little good, and carry with it little influence. He must learn to appreciate the "mighty power of mites," and to hail with welcome his own "day of small things." Small things! The river, that rolls its waters to the sea, rises in the far mountain glen, or in sequestered dales, fed by the dews of Heaven which sparkle on the blade of grass and in the daisy's cup, or by the rain-drop which plashes on the rock or trembles on the leaf. The rain which falls in the fields of the rich man, freshens the poor man's plot; each "blade of grass catches its own drop of dew." Is it a small thing to give the kind look and speak the kinder word, which shall lighten up the faces, and soothe the hearts, of wives or children, and render the cottage, small and lowly though it be, the home of happiness? However lowly the lot of any one he has influence given him which he is bound to use, little as it may be, and which if he uses it, he will find to be exerted for good. It is not the abundance of what a man has, but how he uses it, that is the important thing. And if it is true—as we take it to be, in money-giving charitable matters—that the "liberal soul maketh fat," and that he "that watereth shall be watered himself," shall it not be as true, and life-inspiring in its truth, when applied to the charity that thinketh no ill, and of the kindnesses which knit men's hearts to each other, uniting them in the bond of holy love, and of a pure because a brotherly affection? No man has a right to expect an increase of his powers of influence, unless he shows that he fully exerts those which he has already got. Before a man has a right or a capability to command, he must learn to obey. Let not the employed, whose eye this paper may catch, think that these matters are unimportant: they are all important. In our last paper, while glancing at the duties of the *employers* in the matter of the "education of example," we made bold to be plain in showing the way in which these duties should be performed, and how these duties *must* be performed, before the social condition of the agricultural labourer could be raised. Not less plainly will we now state that no reform will be worth the working for, and worth the wishing for, even by the employers, unless they shall be backed in their efforts by the self-reform of the employed; that the "good time" you *the employed* often sing about—too often, alas! in very bad places—will as little come to you as it will come to your employers, unless this best reform of all reforms, and which (though you may not think it now, but may some day, when you look at the matter truthfully) brings with it reforms of all other kinds needful here, is manfully carried out—not in the pride of your own power, but in the distrust of your own weakness; aided, however, as it must be, with the strength of a living faith and the power of a firm resolve. Listen, and learn! "Working men themselves should feel the importance of cultivating the home virtues. Were they to make their wives their companions, and not their drudges—were they to feel that children had been given them to educate and to train—that these duties could not be entirely cast upon the shoulders either of the day-school or of the Sabbath-school teacher, but must be done by themselves—their homes would become the abodes of virtue and of peace. We may multiply our economic institutions as much as we please, but they will never be properly taken advantage of, nor exercise a salutary influence, until comfortable and clean dwellings become the rule, and not, as now, the exception—until working men, and working men's wives, feel that there is more truth than sentiment in the old song, "There is no place like home."

R. S. B.

REVIEW.

FEVER IN AGRICULTURAL DISTRICTS; Being a Report on Cases of Fever occurring in the parish of Great Horwood, in the county of Buckingham.

By H. W. Acland, M.D., F.R.S., &c., Oxford and London.

John H. and J. Parker.

We have ever considered the value set upon human life as the highest test of the civilization to which a people have attained, and that every means adopted for its general preservation and duration are so many onward steps in their progress toward a perfect state of society. For obvious reasons, which we cannot here adduce, it is only under Christianity that this test ever has been, or ever can be, fully comprehended; and the degree in which it obtains amongst nominally Christian nations marks the purity of the faith professed by them. If we find that in Naples, for instance, the annual number of murders is two hundred to the million, whilst in England they are only four to the million, we may justly conclude that in Naples the principles of Christianity, whatever may be the apparent devotion of the people, have but little influence upon their moral character, whilst they thus recklessly disregard the highest obligation enjoined upon them by the religion they profess.

With these views, briefly expressed, we consider the investigations into the principles of sanitary economy, which of late years have attracted so much of the public attention, as indicating a great advance in the progress of national and individual happiness. To know the causes of contagion and disease opens a way for their prevention and cure; whilst to enforce the means of prevention, and apply those of cure, even against the will of the subjects of their influence, is perfectly consistent with the liberty of the people, because the evils are cumulative, involving the welfare of a community. For instance, we have in our eye a short street in a large city, in which fever is the normal condition, and from which it was continually disseminated in the surrounding district. In a corner house, in a principal street which was subject to the malaria from *that back street*, *eight families* were successively taken off by fever before the authorities thought of interfering. This is but an extreme case of what occurs every day in most large towns, where the filth and squalor of the back lanes prove the nursery of disease and the means of its extension.

We have been led to make these reflections by the perusal of a "report on cases of fever" in a parish in Buckinghamshire*. The disease first broke out at Michaelmas, 1857, and continued at least up to the 9th July in the present year. It was purely local, or endemic, and therefore the causes were more accessible to investigation. The population of the village was 704, the number of cases 125, and of deaths 18. Thus 17½ per cent., or one-sixth of the population, took the fever, and 14 per cent. of these died. If a similar amount of disease and mortality were to take place in London, reckoning the population at 2½ million, the cases would amount to 444,250, and of deaths to 63,464. The disease was what used formerly to be called "common continued fever running into typhus, but is now designated by the faculty by the more distinctive name of *typhoid*"; and Dr. Acland states that "in well-marked cases *typhoid fever* is more fatal than typhus," although the well-known malignity of the latter has given it the pre-eminence for fatality amongst non-medical men.

The investigation instituted by Dr. Acland, at the request of the Board of Guardians, showed that although the first case was the probable result of a visit to Buckingham, where fever was then prevalent, it was rendered general in the parish wherever the conditions were conducive to its attacks. These are close and ill-ventilated bed-rooms, overflowing privies near the dwelling-house, accumulations of animal and vegetable matter in a state of decomposition near the house-door or window, want of a back door to the cottage, ground floors sunk below the surface of the surrounding soil, old thatch in a state of decomposition, &c., &c. All these causes are so many poisons awaiting but a condition of body in the inmates favourable to their reception, to enter the system with fatal effect. A cold, over fatigue, mental anxiety, scanty or unwholesome food, prepare the subject, into which the virus disseminates itself, and seizes upon the constitution; and according to the strength of which, to offer resistance, or rather to the predisposing habits of the individual, will, as a general rule, be the ultimate result.

We repeat again—for it is of the utmost consequence to bear it in mind—that fever, in every form, is cumulative, and that *one* house in a district, in which the means of prevention are habitually neglected, may, and frequently does, prove the cause of wide-spread disease and death to numbers, innocent of any such neglect, and otherwise likely to be exempt from its consequences. Owing to this cause, Dublin, and almost all the towns in Ireland, were never without fever, in one form or other, until the famine of 1847, when the evil reached its maximum, and compelled the authorities to interfere, and establish Boards of Health, that have greatly mitigated the evil.

In England, the sanitary condition of the rural districts depends more upon the owners of property than upon the occupiers. Were the landlords to pay more attention to the construction of the cottages, the more cleanly and decent habits of the peasantry would secure them in a great measure from febrile disease. It is the interest of the landlord, too, as well as of the peasant tenant, that the latter should occupy houses well ventilated, well drained, and with every domestic nuisance removed as far as possible. This is one of the duties of property too much and too frequently neglected, although less so than formerly. We have no hesitation in saying, that the most striking proof of the prosperity of a landowner is, the vicinity of a village of neat, cleanly, well-ventilated cottages, inhabited by a healthy and contented peasantry, whose comforts and wants are cared for by the owner of the "great house" near by, and who, in return, are bound to him by ties which constitute a moral obligation of the most direct and influential kind.

No country is absolutely exempt from epidemic or endemic disease. Irremediable and general causes of an atmospheric nature exist to produce the former; whilst local ones of an equally unremovable nature, such as the vicinity of a marsh, a stagnant lake, or a damp, low wood, are productive of the latter. But these effects may in all cases be mitigated by the care of a good landlord, as increased by the neglect of a bad one. The former, whilst doing his own duty, will enforce that of his tenant by compelling him to observe the means of health and comfort in his domestic habits.

THE GROWTH AND USE OF MANGOLD WURZEL.

Losing faith in the soundheartedness of their bulbous friend the turnip—surmising, perhaps, that his flesh has begun to grow too ligneous and lymphatic when nourished more with "bone" than muscle, more with "Lawes" than with the "old farm-yard"—root growers have this year sown an unexampled breadth of mangold wurzel. One farmer of our acquaintance (not in Essex, or any other peculiarly mangold country) has two-fifths of his fallow cropping under this root; his next neighbour has twenty-five acres; and so on throughout the district, where hitherto only patches have been cultivated—as though the farmers had been fearful of being caught by dangerous weather late in autumn, or else did not know how to secure and utilise these valuable roots. Our hopes of the spring have been realized; our labour in watching lax fingers dropping six seeds instead of one into each dibble-hole, or our contrivance exercised in working the matchless water-drill, have been well rewarded by a bulby and healthy produce. Many a light-land four-course farmer is gazing with dismay upon the mean bulbs of his turnip fields, and dares not count how many in every hundred plants are either developed into fangs or pine-apple necks, or, hydra like, have more than one head, or are knotted into masses of tumorous excrescence. But those of us who have soil better than thin flinty sand, and have ventured rather extensively with beets, are busily engaged in taking up and making safe a crop that will amply repay our trouble, and that relieves our disappointment about the poor turnip crop.

On some naturally-poor soil, too moist for good sheep-breeding, and where the roop crop is therefore not a prominent feature in the rotation, we have mangolds grown alongside of swedes, both tilled for, manured for, &c., as nearly as may be alike; and a lesson may be gleaned from the result:—A luxuriant plant of swedes, mildewed down to some ten tons per acre: a good plant of mangolds matured into a crop of thirty tons per acre, as estimated by weighing the roots on the fortieth part of an acre. Not a singular case, mind you; but just a similar state of things to that existing generally throughout the country. Our fifteen acres of swedes will soon vanish through the slicer and pulper, when the cold weather comes: our fifteen acres of mangold supply us with at least four hundred tons of fine-fleshed roots, which sheep in the field, and cattle, pigs, and farm horses at the farmstead, may devour at the rate of three tons a day in the late winter, and during the inclement interregnum between winter and spring, when Boreas blusters over the shivering land. But "mangolds are so expensive to grow." Not a bit of it. We are busy taking up just now, without hindering wheat sowing in consequence; and the method and expenses shall be forthcoming next week. Meanwhile our readers may be meditating, and making up their minds to sow more largely next season. It may be instructive to remember how this same mangold wurzel was treated in its earliest cultivation.

The field beet (not the red garden beet, which had long been common enough) was introduced from Germany into France in the year 1784, under the name of *la racine de disette*, and the English agriculturist first heard of it from Arthur Young, commenting, in his "Annals" of 1787, upon the novelty. The Abbé de Commerel's pamphlet, recommending the root, had made a considerable noise in France, and he asked a high price for the new seed. As potatoes were at first grown for their apples, so the mangold was to yield six or eight crops of *leaves* for feeding stock during the summer, and the roots (attaining a weight of 5 lb. each) then used for fattening in the winter; and *young plants were all transplanted* like cabbages. But Young affirmed that no satisfactory experiment on the application of the roots in cattle feeding had then been made in France.

Dr. Lettsom introduced the "root of scarcity" into this country, and various experiments were made with it. In 1787, a Berkshire farmer grew half an acre, plucking leaves by hand daily from the end of June to the middle of September. Another gentleman grew them beside turnips, and found the latter best, both for luxuriance of leaf and bulk of root. He boiled some of the leaves for his table, finding them "no way inferior to spinach; but coming in at a time when peas, beans, cabbages, potatoes, turnips, carrots, &c., superior to them, are so abundant, they are of little value, unless the roots will abide the open air through the winter, and give leaves in early spring." The roots not being palatable for his own eating, he concluded that the new root was of little value; and for cattle he considered mown clover or tares tenfold better than the mangold leaves; while the roots could not compete with potatoes, turnips, or carrots. In 1788, a Norfolk agriculturist took up a root weighing 21 lbs., which Young said was much the largest root he had heard of being raised either in France or England; and the grower records that "it had not been transplanted; the transplanted ones weighed only 10 or 12 lb." The next year, a garden plot of mangolds, in Somersetshire, yielded at the rate of 50 tons of roots and 23 tons of leaf per acre. Sir Mordaunt Martin persevered with the new root in Norfolk, and in ten years' time we find him using the roots for pig-feeding, when saved over a winter and up to the next harvest. It was in 1799 that the discovery of "sugar from beetroot" was originated in Prussia—a manufacture now so extensively practised on the Continent.

But in Parkinson's "Experienced Farmer," published in 1798, this root is not even mentioned. Neither is there any allusion to it in Lawrence's "Modern Land Steward," of 1806. Young's "Farmer's Calendar" (8th edition, of 1809) has the following—"Mangel wurzel is dibbed in this month (March), along the tops of ridges two or three feet wide, and which have been previously manured and reversed to cover the dung. It is very little cultivated at present; but Sir Mordaunt Martin, of Norfolk, adhering to the cultivation, and finding the root very advantageous for his cows, it is right to name it in a work of this nature." Very slight notice this, in a volume which devotes space to descriptions and management of woad, weld, madder, liquorice, lavender, chamomile, Siberian melilot, Coronilla varia, Astragalus glycyphyllus, and Bumas orientale. Modern cyclopædias attach a far different value to the indispensable beet. However, we find that Loudon had not advanced further in his acquaintance with it than is indicated in the following, from his Encyclopædia, 3rd edition, 1835—"The culture of the field beet in Britain is very recent, and it may be questioned whether it has any advantage over the turnip for general agricultural purposes. The produce is, *cæteris paribus*, the same as that of the Swedish turnip. The application of the field beet is almost confined to the fattening of stock and feeding of milch cows. Near London they are in repute for the latter purpose. The roots are very liable to injury by frost, and are stored with difficulty. *No plant is less liable to disease.*"

We flatter ourselves that we know better than to confine our mangolds to the fattening cattle and milch cows. Our breeding ewes almost live upon them during the lambing season; our young sheep will have a share; the farm horses will crump them up with great relish; and next summer the pigs will munch the well-keeping residue before the harvest "shack" is ready.

A COUNTRY HOME.

Oh! give me a home in the country wide,
And a seat by the farmer's wood fireside,
Where the fire burns bright,
On a frosty night,
Where the jest, the song, and the laugh are free,
Oh! the farmer's home is the home for me.

Oh! give me a home in the country wide,
When the earth comes out as a blushing bride,
With her buds and flowers,
In the bright spring hours,
Her bridal song ringing from fresh-leaved trees,
And melody floats on the perfumed breeze.

In summer a seat in a shady nook,
And close by the side of a purling brook,
Where the violet grows,
Or the pale swamp rose,
Fainting, sick 'neath the sun's scorching beam,
Dips her pale petals in the cooling stream.

Oh! give me a home in the country wide,
In the golden days of a farmer's pride,
When his barns are filled,
From the fields he's tilled,
And he feels that his yearly task is done,
And smiling at Winter, he beckons him on.

TO MEASURE GRAIN IN BINS.—Multiply the length and width together, and that product by the height in cubic inches, and divide by 2,150, and you have the number of bushels.

CALENDAR OF AGRICULTURE.

During fresh weather, proceed with the ploughing of stubble grounds, and with subsoiling, for the green crops and fallows of next year: begin to plough grass leys for Lent corn. Cast-up earths for composts on roadsides, and wherever it can be found; cast ditches; and clean out water-courses; mend roads; make new fences, and repair old ones; and continue furrow-draining when the weather allows.

Collect earthy and vegetable materials of all kinds for the manure pit; gather mud and earths from the roads for the compost heap; and at no time or season omit any opportunity, or neglect any quantity or substance, however small, that will add to the bulk of the most indispensable of all articles—in most cases more valuable to the farmer than money in his pocket.

Plant forest trees of all sorts; cut underwoods; and fill up vacancies by laying and planting—in hop countries, ash, oak, and willow, are most suitable, especially the former: be careful to keep plantation fences in most efficient repair—nothing shows more clearly the sloven than fences allowing trespass, open and neglected.

Flood meadows at proper times, and lay dry occasionally.

In some early situations, lambs will be dropped this month; provide the most commodious shelter possible; and give the ewes full allowance of the most succulent food on the farm.

Take up turnips, and carry home for store during every opportunity of mild weather, dry and fresh—give the tops to the store flocks.

During frosty weather, thrash and deliver grain; carry stones for buildings and for drains; collect earths; carry fuel, timber, faggots, and dung from the cattle yards to heaps in the fields. Litter the yards as emptied. Spread all substances evenly and thinly; and keep the yards dry and comfortable.

The Winter now being set-in, the live stock, of all kinds, require the most constant and vigilant attention; provide ample littering, both in the yards and stalls; give food in abundance, but no waste; keep the steamer in constant work to afford cooked food daily to cows, pigs, poultry, and to the work horses—give it fresh done and warmish; any acidification of food cannot be recommended. Strive by every possible means to have fresh turnips from the store heaps daily; but, in fresh weather, they are best drawn from the field: the yards should be so constructed that all animals eat under cover, unless it be in very warm situations.

It is most essential that property of every kind be insured—the stock and crops by the farmer as his property; and the buildings by the owner of the land. The expense of insurance is now reduced to any convenience, and removes all complaints on that head; no loss need be sustained from fires; and the damage done to growing crops by hailstorms is also repaid, by the new arrangements. These provisions are most highly useful and advantageous to the agricultural interest.

GIANT WHEAT.—The improvement in our seed wheat has engaged the attention of the most eminent agriculturists and seedsmen, and this description comes nearer to our estimate of prime and productive wheat than any that we have yet seen. At the late Show we saw some specimens of the Giant Wheat, grown at Old Court by Major Quentin, but it failed in producing in our mind the conviction which an inspection of the growing crops of this year has done. On a recent visit to Old Court we examined his crops; and while his stock and general crops demanded our admiration, we were particularly struck with the Giant Wheat. The first piece we saw was about half an acre, which was interlined with potatoes, that is, each alternate bed, or breadth of about four feet, was potatoes and wheat, the wheat this year growing where the potatoes had been last year. The seed was all dibbled in with Sigma's Corn Planter, which deposits the seed at nine inches apart; the corn now stands nearly seven feet high, and is a very heavy crop; the length and weight of the ear is surprising—they average from 8 to 9 inches in length, and each ear has from 28 to 32 rows of spikelets, each spikelet having three or four grains in the row; but what struck us with most surprise was the immense number of ears from each grain that had been sown; the clumps of corn growing from one setting were almost sheaves; we counted several of them, and found from 40 to 60 ears of corn growing together from one setting, and we learned that some were found to have 72 ears. It may have been that in the planting more than one grain got into each hole; but even if there did, the armful of stalks now growing is surprising; and if the average yield of each head is 80 grains, which is far under the mark, and the number of stalks growing together is 40, which is also below the average, we have the enormous yield of 3,200 fold. Looking over this plot at a distance, or from the top of the fence, it has the appearance of a very heavy crop; and yet all the seed that was put into it—which, in consequence of the interlineation with the potatoes, may be called a ¼ plantation acre—was *four* pounds. We also examined another half acre not interlined, sown after, which received 13lbs. 4oz., and a third piece later still, which was planted with 13lbs. 12oz.; another acre sown in December got 36lbs. seed, as Sigma recommends the quantity to be increased as the season advances. All these pieces are remarkably heavy crops, and if the season is favourable, and that the yield is equal to that of last year, there will be 18 to 20 barrels to the plantation acre. We brought away as specimens a couple of ears of this Giant Wheat, and they may be seen at our office by the curious in such matters.—*Waterford Mail.*

AGRICULTURAL REPORTS.

GENERAL AGRICULTURAL REPORT FOR NOVEMBER.

Notwithstanding the scarcity of water experienced in several parts of England during the last three months, no serious complaints have come to hand to the effect that out-door farm labours are to say backward. However, for some time past, the land has worked otherwise than kindly, and we may safely state that the present has been anything but a fine season for wheat-sowing; nevertheless, in most of our principal counties, the young wheats are looking strong and healthy.

The turnip and beet crops, owing to the absence of adequate supplies of moisture, are turning out somewhat deficient, both in weight and quality. This deficiency will, eventually, prove a serious matter to those of our graziers in the midland and eastern districts, more especially as they have much less hay in stack than in the ordinary run of years. Food is, therefore, likely to rule high in price, and enhanced quotations must lead to large purchases of hay in distant quarters, to ensure a full average supply for both beasts and sheep during the winter months.

There has been rather a better feeling in the wheat trade than in the previous month. Prices, however, have not advanced; and there has been no disposition shown on the part of the millers to get into stock. As we are now arriving at that period of the year during which transactions are restricted, we can hardly anticipate any important movement until after Christmas. Even then, we may not see prices much above their present level, for reasons already alluded to; and every one must admit that we have still a large quantity of last year's wheat on hand, and that only moderate supplies of the new crop have passed into consumption. Spring corn still maintains its price remarkably well, although the importations from abroad have been on a liberal scale, and although the demand for grain spirit for shipment to the continent has now become trifling, when compared with many previous years. The quantity of really fine barley grown in this country, this season, is unusually small, and the importations have been mostly inferior; so that good parcels will, no doubt, continue to realize extreme—possibly, very high—quotations.

The French Government have recently issued a decree compelling the bakers in all the towns and cities of France, of a certain degree of importance, to lay in a stock of flour for three months! It really does appear a most arbitrary act on the part of any Government to interfere with the just privileges of the bakers; in other words, this measure seems to us the working up of a little political capital at other people's expense. The object sought to be attained will assuredly fail; but, no doubt, the effects of the decree will be narrowly watched by those engaged in the corn trade in this country.

The potato crop, both in the United Kingdom and on the continent, has turned out much larger and of finer quality than was at one time anticipated. The metropolitan and other markets have been abundantly supplied with all kinds of potatoes, the prices of which have ruled from 60s. to 95s. per ton. From abroad about 1,800 tons have arrived in London, in fair condition. The low price of bread has operated against the potato trade, which is likely to rule heavy for some time, more especially as there is now more than usual competition between the growers than in some former seasons, arising from the increase in railway communication, and the low charges of the various companies for carrying produce to London.

The demand for both hay and straw in the metropolitan markets has been far from active. Meadow hay has sold at from £3 to £4 10s., clover hay £3 15s. to £5 5s., and straw £1 5s. to £1 10s. per load.

The public sales of colonial wool have progressed with remarkable evenness. They opened at an advance in prices of 1d. to 2d. per lb., and that improvement has since been maintained, although the purchases for export to the continent have been on a very moderate scale. English wool has slightly advanced in price, and the stocks in the hands of the manufacturers are still limited.

The quantities of hops, both new and old, now on hand, are unusually large. Fine samples have mostly sold at full quotations; but inferior qualities have met a dull inquiry, and prices have shown a drooping tendency.

In Ireland and Scotland wheat, barley, and oats have been in fair request, at full currencies. Other produce, however, has met an inactive inquiry, on former terms. The shipments of produce to England have not increased; and the farmers, almost generally, have shown no disposition to force the markets.

REVIEW OF THE CATTLE TRADE DURING THE PAST MONTH.

Most of the cattle markets held during the month just concluded have been seasonably well supplied with beasts as to number, but their general weight and condition have exhibited a great deficiency, when compared with many previous corresponding periods of the year. For prime stocks, therefore, there has been a fair demand at full prices to a slight advance, but inferior breeds have changed hands slowly, at low currencies. As regards sheep, we may observe that little or no improvement has been observed in them, that their numbers have continued moderate, and that sales have progressed slowly, at further depressed rates. Other stock has commanded very little attention. The comparative inactivity in the trade in the Metropolitan Market must be chiefly attributed to the immense quantities of slaughtered meat forwarded both from Scotland and various parts of England to Newgate and Leadenhall, which markets have been completely glutted with pork. The great abundance of the latter has taken not a few persons with surprise; but we must bear in mind that for many years past pigs have been selling at very high rates, and that the numbers, under the influence of remunerative quotations, have rapidly increased. These remarks apply not only to England, but likewise to Ireland and Scotland. The great increase in the supplies, and the high value of the inferior kinds of food, have led to increased slaughtering; but whether such a course is a prudent one time alone will determine. Our impression is that we shall have much firmer markets for both beasts and sheep next year, and that prices will rule higher than they now are. It must, however, be understood that these remarks refer more particularly to second and third rate stock, which for many months past have yielded scarcely any profit to the graziers, whose outgoings for food have been a most serious item in their expenditure, arising from the want of adequate supplies of moisture during the past four months in not a few of our grazing districts. Again, the same state of things has prevailed in the North of Europe, from whence we have imported much larger supplies of stock than we had any reason to anticipate, and such is the scarcity of food in that portion of the continent that large imports of hay have been found necessary. Rather, however, than run the risk of feeding at high prices, many of the graziers have disposed of most of their stock, even at a considerable sacrifice, and hence we assume that our arrivals from abroad next year will be small, and that consequently they will have a less governing influence upon the quotations. This, of course, is a matter of no ordinary importance both to the breeders and feeders in this country. The latter important body of men may be induced to purchase store animals at almost any price, and they may perhaps conclude that the available supply of stock in the United Kingdom is by no means equal to our wants. Too frequently, however, information on this important matter is extremely fallacious, and it invariably happens that stock under the influence of high quotations is drawn from quarters whence little was anticipated. Take for instance Ireland at this moment: our imports still continue very large, and the deficiency in the weight of the importations from Holland, &c., has been more than made good by the Irish graziers. When we consider that there is plenty of food in the sister country, and that stock is abundant, notwithstanding heavy exports, great care should be exercised in buying lean stock at very high quotations.

Although the trade in butchers' meat in Paris has now been thrown open for some months, and although fat stock has fallen in some departments, the prices of meat in that city still continue very high — the difference between the live animal and the carcase being from 30 to 40 per cent. The absurd scheme, therefore, on the part of the authorities, to regulate the value of any particular article, is in this instance a complete failure. But why should so important a trade be interfered with at all? What, in point of fact, can bring down prices to their natural level but wholesome competition?

The imports of foreign stock into London, during the month, have been as follows—

Beasts	4,787 head.
Sheep	18,253 ,,
Lambs	51 ,,
Calves	1,174 ,,
Pigs	156 ,,
Total	24,421

At least three-fourths of the above supplies have come to hand in miserably poor condition, and have, consequently, sold at low currencies. Had food been abundant in the North of Europe, our arrivals would have been on a much less extensive scale. As it is, they have added very little to the supply of food in the metropolis.

IMPORTS AT CORRESPONDING PERIODS.

Nov.	Beasts.	Sheep.	Calves.	Pigs.
1857	4,409	12,839	2,687	136
1856	6,102	16,380	1,152	309
1855	7,367	17,094	1,127	454
1854	7,120	16,604	1,108	369
1853	7,390	22,565	1,629	919
1852	3,102	18,152	1,215	427

The total supplies of stock exhibited in the Great Metropolitan Cattle Market are as under—

Beasts	24,856 head.
Cows	534 ,,
Sheep	114,643 ,,
Calves	1,437 ,,
Pigs	2,970 ,,

COMPARISON OF SUPPLIES.

Nov.	Beasts.	Cows.	Sheep.	Calves.	Pigs.
1857	25,383	505	103,120	3,002	3,067
1856	24,711	457	97,460	1,585	3,535
1855	25,444	515	105,750	2,096	3,415
1854	23,442	512	121,031	1,848	2,726
1853	25,760	562	127,150	2,615	2,790
1852	23,583	485	115,770	1,718	3,210

Since our last, about 13,000 beasts have come to hand from Lincolnshire, Leicestershire, and Northamptonshire, 2,200 from other parts of England, 450 from Scotland, and 3,820 from Ireland. Prices have ruled as follows: Beef, from 2s. 8d. to 4s. 10d.; Mutton, 2s. 8d. to 5s.; Veal, 3s. 4d. to 5s.; Pork, 2s. 10d. to 4s. 2d. per 8lbs., to sink the offal.

COMPARISON OF PRICES.

	Nov., 1857.		Nov., 1856.		Nov., 1855.	
	s. d.	s d.	s. d.	s. d.	s. d.	s. d.
Beef, from	3 0 to	4 10	2 8 to	4 10	3 4 to	5 2
Mutton	3 0 —	5 4	3 2 —	5 2	3 4 —	5 2
Veal	3 10 —	5 4	3 8 —	5 4	3 6 —	5 4
Pork	4 0 —	5 2	3 6 —	5 4	3 6 —	5 0

Newgate and Leadenhall markets have been heavily supplied with country-killed meat, especially pork. The trade has continued heavy, and prices almost generally have ruled low.

AGRICULTURAL INTELLIGENCE, FAIRS, &c.

ANDOVER SHEEP FAIR. — The number of sheep offered for sale was much below the usual average, being under 2,000: so short a supply has not been witnessed for 40 years past. The attendance of dealers was also short, probably owing to another similar fair being held at Ilsley on the same day. Business commenced with good spirit early in the morning, and sales were effected at satisfactory prices, more particularly for first quality lambs, which were in great request. At the close of the fair very few sheep remained unsold. The prices obtained were about as under:—Ewes 28s. to 44s.; wethers, 34s. to 50s.; lambs, 28s. to 44s. Some superior lambs obtained higher prices. There was a large number of Shorthorns, Devons, Herefords, Welsh and Irish beasts, with some fine home-bred cows and Alderneys. Trade improved. Sales easily effected at rather more money. Best stores, three years old, £13 to £15 per head; small ditto, £10 to £11; Shorthorn cows, Down calving, £18 to £20; moderate ditto, £14 to £16; heifers, from £10 to £16 each; fat beasts, from 7s. to 8s. per stone of 14lbs. Of light and heavy horses there was a good supply, the trade for which was also better than at other fairs. Some fine heavy agricultural, warranted from four to six years old, were in good demand, at prices from £30 up to £45 each. Inferior and aged animals were not so much in demand, but riding and driving horses of superior shape and breed were sold at good remunerative figures. Ponies, Welsh and Shetland, found a fair sale at from £6 to £12.

AUCHTERGAVEN MARTINMAS MARKET.—The day was fine, and the attendance good. There were present from 100 to 150 beasts on the stance, which were all sold in the forenoon. One-year-olds sold at from £4 to £7, and two-year-olds from £8 to £12. There were a few milkers, but inferior in quality, which sold at from £8 to £10. Fat beasts brought about 8s. per stone, and sheep from 10s. to 16s. per head. The market was generally very brisk.

BANBURY FAIR.—There was a good supply both of beasts and sheep; the best qualities went off tolerably brisk, the inferior, however, hanging on hand. Beef made from 3s. to 4s. per 8lbs., and mutton from 3s. 8d. to 4s. 6d. Some of the best lots, both of beasts and sheep, were as usual bought by the London and Birmingham dealers.

BEVERLEY FORTNIGHT FAIR.—We had a small supply of cattle, but a fair number of sheep. Prices were rather higher than last market.

CALLINGTON FAIR was pretty well stocked with most descriptions of cattle and sheep. The demand was not brisk, but towards the middle of the day a good many changed hands. Fat cattle realized from 56s. to 60s., store cattle from 35s. to 40s., cows and calves about 45s. to 50s. per cwt.; fat sheep 6d. per lb.

CARMARTHEN FAIR was held last Monday and Tuesday, and is considered the principal fair of South Wales, the attendance being great. In the hiring fair, farm-servants were very scarce, and obtained a great advance on last year's wages: males obtained from £8 to £16, and females from £4 to £8 per annum. The weather being very inclement the supply of stock was not so large as we have seen in former years, but the quality was good. The attendance of buyers for the English fairs was very large, several having disposed of their lots at Kingston fair on Saturday, and had returned. All kinds of store cattle sold slowly at the reduced prices of fairs for the last few weeks, but the average prices of two-year-old steers were from £4 to £9 a head. Fat beasts were scarce, with a dull demand at from 4½d. to 7d. per lb., in proportion as they were suitable for the butcher. Cows with calves were few, and prices reduced. There was a large show of very inferior horses and colts; the sales effected but limited, at a decline in prices. There was a large number of sheep penned, but the business was very dull, and only prime animals sold: store kinds were neglected. The pig fair was well supplied, and fat pigs sold slowly at from 7s. 6d. to 8s. 6d. per score; lean stores and small pigs were nearly unsaleable.

CASTLE-DOUGLAS HORSE FAIR.—There was an average show of horses, but the draught animals were limited. There were a number of west country dealers present; the demand was not brisk, however, and the market was slow and dull, except for superior animals. Prices were rather under those current at the Dumfries September fair.

DONCASTER FAIR.—The show of stock was immense—much more than was ever seen on any similar occasion in Doncaster. This large supply no doubt may to some extent be attributed to the serious deficiency in many parts of the turnip crop, farmers being compelled to be sellers from want of winter keep. As might be reasonably expected, the supply considerably exceeded the demand, which caused inferior and poor beasts to be offered at a reduction in value. A large number remained unsold at the close of the fair. Fresh and well-bred stock found customers at quite as high prices as sellers anticipated. There were few fat beasts, and of prime descriptions not any that we are aware of, the top price being 6s. 9d. per stone. Newly-calved cows in abundance, and for all but the best descriptions a slow sale. A poor show of sheep, especially of hogs, with little trade at late current rates. The highest price realized for hogs we believe was 28s. The horse fair was of the accustomed character, although there were customers for first-class animals if they had been on offer.

DUNSE FAIR.—The supply of cattle was fully an average one. The prices obtained for stirks were from £5 to £10, according to quality. Two-year-old cattle sold at from £11 to £14; and fat cattle at from 7s. to 7s. 9d. per stone. There was a middling show of cows, which were selling at from £7 to £12. The supply of sheep was smaller than usual, and hoggs brought from 12s. 6d. to 18s. 6d.; mutton, 6½d. to 7d. per lb. The show of horses was large, but principally of an inferior description, and the demand was limited.

EAST ILSLEY FAIR.—The supply of sheep was very short. Lambs sold at from 2s. to 3s. per head dearer than last month. Ewes and sheep about the same.

FARNHAM FAIR.—The cattle and stock were of a very ordinary description, and quality, generally, and few buyers presented themselves. In consequence of which a very dull fair was the result. The little business transacted in the fat stock fetched the following prices:—Mutton, 4s. 6d. to 5s. 6d. Beef about a crown. Store pigs cheap. Horses very inferior; few changed hands.

GLOUCESTER MONTHLY MARKET.—The quantity of stock on sale was unusually large, but trade dull; consequently prices had a downward tendency. Sheep from 6d. to 7d.; beef, 6d. to 6½d. per lb.; pigs, 8s. to 8s. 6d. per score.

KNIGHTON FAIR.—The supply of stock was not large, and the prices were, if anything, better than at neighbouring fairs. To quote the words of a farmer, "the price to-day is not much the matter with." Beef was worth from 5½d. to 6½d.; mutton, 6d. to 6½d.; bacon pigs, 4½d. to 4¾d. per lb. In the horse fair trade was heavy. Good first-class horses are, however, worth good prices still; little, if any, depression having been felt in the demand for that class of horses.

LAUNCESTON FAIR was well attended by farmers and dealers, and there was a good supply of useful beasts. The sale was excessively dull at declining prices, and a vast number left the fair unsold. There were some splendid animals shown as Christmas beef, and most of them sold at £3 10s. per cwt. It was not a large supply of sheep, which changed hands at 6d. per lb. York wool in demand at 1s. per lb.

LLANDOVERY FAIR.—Live stock suffered a considerable reduction in price, and consequently but little business was transacted. Horces and pigs also were affected by the present depreciation in value. Many of the farmers are apprehensive that their good times are passing away.

MUIR OF ORD MARKET. — The show of cattle and sheep was far below that of last year in point of numbers, and was very inferior in quality. The cattle on the ground amounted to 964, being about 400 short of last year; the sheep amounted to 889, showing about 500 short. Horses and pigs, however, were rather above the corresponding market of last year. For all kinds of stock there was almost no demand, and what little was sold was at greatly reduced prices. Very few southern dealers were present.

RUGBY HORSE FAIR.—Best carriage horses and good hunters were sought after, and brought high prices. Working dray horses were lower than last year; as were unbroken cart colts. Fillies were neglected, and those disposed of did not fetch remunerating prices.

SALISBURY, (Thursday last.) — The supply was large, both of Beasts and Sheep, and the best were quickly disposed of, but generally the trade ruled dull, though prices were a trifle lower. Best Oxen realized 11s. to 12s.; Heifers, 10s. to 11s.; Mutton, 7d. to 7½d. per lb. Downs were scarce.

WELLINGTON FAIR.—There was an average supply of stock, but, on the whole, very flat. Beef averaged about 6d.; mutton, from 6½d. to 7d. per lb.

YORK FAIR was numerously attended, Grazing stock had a decidedly downward tendency; the horses shown, which were of a fair quality, for saddle, harness, or carting purposes, found buyers at a downward figure.

YEOVIL FAIR was largely attended, and well supplied with stock, but the trade was very dull. Horned stock was plentiful, but very rough; the best beef fetched 11s. About 5,000 sheep were penned, but business very dull. The highest price was made by the horn sheep of Mr. Hussey, of Ilchester, which fetched 48s. ahead. The best down ewes 36s. to 37s. Horses a poor sale.

IRISH FAIRS.—DUNDALK: There was little or no prime beef. The very best quoted from 5½d. to 5¾d. per lb. in sink; second quality, 45s. to 47s. 6d.; inferior, 40s. per cwt. Middling beef, fit for turnip feeding, may be noted at 4½d. per lb. The supply of sheep was inconsiderable. The buying was hardly tolerable, except where victuallers bought for home consumption. Wedder (of which there was little) may be noted from 5½d. to 6d. per lb. A number of lots of ewes were bought early. A great number of heavy swine were sold. Bacon was two guineas to 45s. per cwt. in the range. Stores sold well; suckers were very high. For the smallest 25s. a couple was asked, but might be had at 1*l*. 1s. as the lowest figure.

REVIEW OF THE CORN TRADE

DURING THE PAST MONTH.

The past month has almost been favourable beyond precedent for clearing the land, and getting in the autumnal sowing, sufficient rain having fallen to work the surface; but the want of keep for cattle, and the deficiency of soft as well as spring water, have been some abatement in the account. The early sown wheat was getting rather too forward, but the frosty nights and some severely cold days have served as salutary checks.

As respects prices, markets have still been on the decline moderately, say about 1s. per qr.; but they have closed with more tone, and the turn affairs have taken in France seems calculated at least to prevent the rates from going down further. The Imperial Government, which for a long time has interfered with commerce, has at last issued a decree ordering the bakers of about 161 principal towns to lay in a three months' store of reserves, either in grain or flour, as may be in future determined. This is, in other words, according to careful calculation, nothing more or less than an order to lay up three months' demand for about eight millions of people, as the towns specified contain a population of about that number; without, however, putting an equal pressure on the farmers to bring out the quantity required, as well as providing the necessary capital and storage room, immense difficulties appear in the plan. But doubtless some kind of attempt will be made; and this measure has already had the effect to raise the price of wheat in France about 1s. 6d. per qr., though English markets have been comparatively uninfluenced.

A month is indeed given to the prefects of departments to confer with the municipalities to devise means for the execution of the decree; but this, we prognosticate, will show the impossiblity of its being fully carried out.

By the admission of the Government, last year's crop is only an average one, and therefore not enough for the country without foreign help; and 1857, with all its plenty, is not likely to have left so great a surplus. But this, we think, is a case illustrating the desirableness of general statistics; and should the continental nations and our own country ascertain their stores, we believe it will turn out that the whole world is not in a condition to meet so heavy a claim, if it became universal; nevertheless, we find Sardinia following the example of France. Other countries have found the corn trade dull, but lately Belgium and Holland have shown better prices with more demand.

The following prices show the state of foreign markets: At Paris fine wheat was worth 40s. to 41s., Picardy wheat 38s. per qr., native white wheat at Antwerp 42s., new red Louvain 45s., Amsterdam top quotation was 54s. for fine Polish, Hambro' prices ranged from 41s. to 46s., red at Stettin 43s. 6d., high mixed at Danzic 48s. to 50s., Konigsberg 47s. 6d., Berlin 48s. 6d. Though trade at Odessa had been very dull, with supplies increasing, there was not yet a proportionate reduction in prices, from the failure in several Russian governments, and in Poland Polish was still held at 39s., and but little of this sort arrived; Ghirka 36s. 9d.; Berdianski was quiet, with 39s. 6d. quoted for soft wheat; Taganrog price was 31s. 9d. The new wheat at Galatz was light, 57lbs. per bush. being only worth 24s. 6d. free on board. At Alexandria, for December delivery, the weak foul wheat of Saidi was quoted 18s. 3d.; much below beans. Smyrna having suffered by drought, was high priced, viz., 49s. 6d.; fair quality red at Trieste was held at 43s. 6d. At Algiers both hard and soft wheats were worth 45s., there being a demand for Spain. Red Genesee at New York was quoted 38s. 9d. per qr., and white Kentucky as high as 49s. per qr.; notwithstanding increasing supplies, the bulk was very inferior.

The first Monday in London commenced with fair supplies of wheat, both English and foreign. From Kent and Essex the morning's show was rather below an average; but the market opened very dull, and a dense fog prevailing till late, scarcely any business could be effected, and that only at a reduction of 1s. to 2s. per qr. on English samples. Foreign factors not being disposed to give way to this extent, there was very little trade, and that in buyer's favour. Very many markets in the country fully responded to the London report, as Hull, Boston, Spalding, Bury St. Edmunds, Colchester, Gloucester, and Portsmouth; but Leeds, Birmingham, Bristol, and several other towns were only 1s. per qr. lower, and a few places were unaltered. Liverpool was 2d. per bush. cheaper on Tuesday for all but the finest qualities; and on Friday, with a thin attendance, the trade was worse, and prices irregular, new French samples being 2d. to 3d. per 70lbs. down.

The second Monday was rather better supplied, there being a large arrival of Russian wheat from Cronstadt. Kent and Essex, however, sent but few samples, and the tone of the market was improved, the sale of white English wheat being much more free, but not at higher rates. The same improved feeling was evinced in the foreign trade, which was firm for all sorts. The country reports were nearly all improved; Boston, Lynn, and Newbury to the extent of 1s. per qr., and Spalding 1s. to 2s. Generally there was only a more ready sale, but in a few instances the previous dulness obtained, Rochdale being 1s. per qr. cheaper. Liverpool, on Tuesday, found better demand, at unaltered quotations; Friday's market was less active, without change of rates.

The third Monday commenced with smaller supplies from abroad and at home, though the number of samples from the near counties was rather increased. Millers, notwithstanding the lower rates of town-made flour were more ready buyers, and the samples of good quality went off smartly. There was also a fair business in foreign chiefly in middling qualities of Russian, at fully the rates of the previous week. The country markets generally were unaltered, and agreed with the London advices; but some were dull, Birmingham and St. Ives being 1s. per qr. cheaper; while, on the contrary, Stockton, Barnsley, Bristol, and Spalding, with a few others, advanced 1s. per qr. Liverpool, on Tuesday, was dull, but without change, and the Friday's report there, as well as that of the metropolis, left quotations as at the beginning of the week.

The fourth Monday was but moderately supplied from abroad, and the samples sent up from Kent and Essex were only few in number. The influence of the French decree was hardly perceptible; but the scantiness of the supply, and firmness on the part of the country markets, produced more confidence, and millers nearly cleared the stands of English qualities at fully the prices of the previous week. Friday's market in London was very dull, in consequence of the sudden change to mild weather. The previous advices from the country were firm.

The imports into London for the four weeks have been as follows, viz., of English 26,323 qrs., of foreign 49,281 qrs., giving a weekly average of 18,901 qrs. against 19,487 qrs. for the previous month. The imports for the last four weeks, ending November 10th, into the principal ports of Great Britain, in wheat and flour, have been equal to 231,195 qrs. against 210,814 qrs. for the four weeks previous. The last four weeks' sales were 433,941 qrs. against 388,631 qrs. the same time last year, showing an increase of 45,310 qrs.

The course of the flour trade, like that of wheat, has been downwards as respects prices. The first Monday, with the best supply, noted a fall of 3s. per sack in town-made flour and 1s. in Norfolk and country qualities—making the top price of the former 40s. per sack and the latter 29s. The successive weeks were not characterized by any peculiar features, the rates being pretty steady; but low American samples out of condition have been quite unsaleable, and the best qualities being worth more at New York than in the London market, there is no inducement to ship them. Extra Southern in that place was quoted 7 d. 50 c. per brl. and Missouri 8 d. per brl.—equal, respectively, to 45s. and 47s. per English sack, to which must be added freight, insurance, duty, landing charges, and factor's commission. The four marks at Paris were quoted 31s. 6d. per sack: worth 35s. per sack here, duty paid. The imports in four weeks have been from the country 73,823 sacks, in foreign 8,645 sacks 2,156 brls., against 66,945 sacks English, 2,308 sacks 4,402 brls. foreign last month. The four weeks' exports in wheat and flour were only 420 qrs. wheat and 473 cwt. flour.

Barley in the course of four weeks has little altered as respects the finest malting descriptions, which have been very sparingly sent to the London market, and have therefore kept their value; but with a large influx from the Baltic and Black Sea, middling sorts have declined in value about 2s. per qr., there having been a less free sale of the lowest grinding descriptions. Since the decline in oats 53lbs. barley has been selling at 27s. 6d. per qr., and this has brought more inquiry from the country, but there has been no speculative demand for large quantities. Still, the comparatively high prices of beans and peas seem a security against much farther decline, and with an early closing of the Baltic, there may be some improvement, and farmers have the malting trade in their own hands, as foreign sources almost entirely fail. The imports into London for four weeks have been 14,328 qrs. English, and 40,146 qrs. foreign; giving an average weekly supply of 13,618 qrs., against 20,079 qrs. last month.

The oat trade has experienced considerable fluctuations owing to the unprecedentedly large foreign supplies, the balance against prices being about 1s. per qr. The first Monday evinced some reaction from the heavy decline of the week previous, and the rates were quoted 6d. to 1s. per qr. improved, but the second Monday lost this advance, and the third brought the range of prices below what had been experienced for a long time past, the fall being a further 1s. per qr. The fourth Monday with a moderate supply showed some improvement, sales being made slowly at 6d. per qr. advance. This again was lost at the week's close. The four weeks' imports into London have been 2,846 qrs. English, 4,470 qrs. Scotch, 11,325 qrs. Irish, and 236,353 qrs. foreign: in all 254,994 qrs., giving a weekly average of 63,748 qrs., after a weekly supply last month of 66,198 qrs., and 48,501 qrs. weekly for the month before that. The exports have lately increased, the last four weeks amounting to 7,192 qrs. Dealers are all well in stock, and the successive heavy arrivals have compelled factors to send the surplus to store, so that the market will be comparatively independent for some time should Baltic supplies diminish; but we cannot help thinking that as the winter deepens they must partly rally, navigation being closed at St. Petersburg and other places.

Of beans there have been no heavy supplies either of home growth or foreign, yet the state of trade has been excessively dull, and rather against sellers, but the difference in fine old English is hardly quotable: they are getting scarce, and will probably continue dear; but inferior parcels are interfered with by Egyptian and the low rates of barley. The quantities received in London in four weeks have been of native sorts 2,326 qrs., of foreign 5,642 qrs., making the weekly supply 1,992 qrs., against 4,011 qrs. last month. Supplies for the future from Alexandria are expected to fall off, the stocks being much reduced and crop light.

Peas have been equally dull with beans, notwithstanding the deficiency of the crop. The supplies though only moderate have met but a languid demand, wheat itself having been a cheaper food for cattle than maple or dun peas, while boilers have hardly come into season, and shipments of foreign have been too early for the demand. Maples have become difficult to procure at any price, 46s. to 48s. having been paid for them; but duns have fallen to 40s., and boilers only bring 42s. per qr.: for these latter there seems a good prospect of improvement, especially should the weather prove sharp and long. The arrivals in London in four weeks of all kinds were 2,763 qrs. home grown and 3,969 qrs. foreign, against 2,144 qrs. English and 10,029 qrs. foreign last month.

Linseed till lately has been but in moderate supply, and the foreign demand continuing, prices have been about maintained, notwithstanding their high range. Cakes have rather given way, being too dear to use very freely for cattle. The receipts in four weeks were 33,216 qrs., and the exports 3,275 qrs.

The seed trade has scarcely witnessed any change. Foreign offers of new red cloverseed have been continually made, but Belgian and German are far too high (viz., 57s. to 60s. per cwt.) for this market. Bordeaux has been offered at 52s. per cwt. free on board, a price which will probably be freely paid as the season wears; but dealers found the disadvantage of early purchases last year, and remain content to wait on their small stocks till the English crop is partly thrashed.

Trefoil has been steady, and canary become settled at 78s. to 80s. French winter tares hang on hand at 10s. per bush. Some new Hambro' spring have appeared, and are held high, the crop being bad abroad. Hempseed, rapeseed, coriander, and carraway remain much as last month.

CURRENCY PER IMPERIAL MEASURE.

Shillings per Quarter.

WHEAT, Essex and Kent, white	39 to	47	new	40 to	47
,, red	37 to	43	new	38	43
Norfolk, Linc. and Yorks., red	39	42	new	39	43
BARLEY, malting, new	— to	35	Chevalier, new	38	43
Grinding, new	26	29	Distilling	29	30
MALT, Essex, Norfolk, and Suffolk	58	66	fine	69	72
Kingston, Ware, and town made	58	66	,,	69	72
Brown	54	56		—	—
RYE, new	—	—		30	36
OATS, English, feed	20	25	Potato	26	32
Scotch, feed	20	25 27	Potato	26	31
Irish, feed, white	20	23	fine	25	29
Ditto, black	19	21	,,	—	22
BEANS, Mazagan	36	37	Ticks	36	38
Harrow	37	40	Pigeon	40	45
PEAS, new, white boilers	40	42	Maple 42 44 .. Grey	39	40
FLOUR, per sack of 280lbs., Town, Households	35s.		fine	37	40
Country	29	31	Households	31	34
Norfolk and Suffolk, ex-ship				28s.	29s. 6d.

FOREIGN GRAIN.

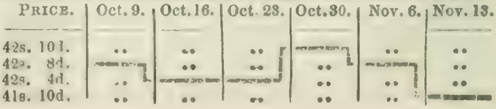
Shillings per Quarter.

WHEAT, Dantzic, mixed	46	—	high do. — 49 extra	—	51
Konigsberg	40	46	,, — —	—	—
Rostock	45	—	fine 46 old 48	—	—
American, white	43	49	red 42 45	—	—
Pomera., Meckbg., & Uckermrk, red	42	45		—	—
Silesian, red	42	44	white	43	46
Danish and Holstein				40	43
Russian, hard	39	40	French 42 43 white	42	44
St. Petersburg and Riga				40	42
Rhine and Belgium				—	46
BARLEY, grinding	21	26	Distilling	28	30
OATS, Dutch, brew, and Polands	21	27	Feed	20	23
Danish and Swedish, feed	19	23	Stralsund	21	24
Russian				19	21
BEANS, Friesland and Holstein				34	37
Konigsberg	34	37	Egyptian	33	34
PEAS, feeding	39	40	fine boilers	40	42
INDIAN CORN, white	32	33	yellow	30	32
FLOUR, per sack, French	33	35	Spanish	—	—
American, per barrel, sour	19	21	sweet	24	26

COMPARATIVE AVERAGES—1858-57.

From last Friday's *Gaz.*		s.	d.	From *Gazette* of 1857.		s.	d.
Wheat	99,283 qrs.	41	10	Wheat	91,010 qrs.	51	8
Barley	86,713	35	5	Barley	81,572	41	3
Oats	9,440	23	2	Oats	13,455	25	3
Rye	149	31	0	Rye	134	34	7
Beans	2,781	43	4	Beans	4,911	44	9
Peas	1,070	43	8	Peas	1,912	43	11

FLUCTUATIONS IN THE AVERAGE PRICE OF WHEAT.



IMPERIAL AVERAGES.

For the last Six Weeks:	Wheat. s.	d.	Barley. s.	d.	Oats. s.	d.	Rye. s.	d.	Beans s.	d.	Peas. s.	d.
Oct. 9, 1858	42	8	35	10	23	7	32	7	44	2	44	7
Oct. 16, 1858	42	4	35	9	22	9	32	6	44	7	44	6
Oct. 23, 1858	42	4	35	8	22	10	30	7	43	1	45	5
Oct. 30, 1858	42	10	35	7	23	5	31	0	43	6	45	7
Nov. 6, 1858	42	8	35	5	23	0	33	0	42	9	44	4
Nov. 13, 1858	41	10	35	5	23	2	31	0	43	4	43	8
Aggregate average	42	5	35	6	23	2	31	9	43	7	44	8
Sametime last year	54	2	42	9	25	6	36	0	45	5	44	4

MONTHLY RETURN.

An Account shewing the Quantities of Corn Grain, Meal, and Flour, imported into the United Kingdom, and admitted to Home Consumption, in the month of October, 1858.

Species of Corn, Grain, Meal, and Flour.	Imported from foreign Countries.			Imported from British Possessions out of Europe			Total.		
	qrs.	bush.		qrs.	bush.		qrs.	bush.	
Wheat	282239	0		3252	6		285491	6	
Barley	168577	1		3	4		168580	5	
Oats	246342	3		4	5		246347	0	
Rye	20948	7		..			20948	7	
Peas	17330	4		2696	3		20026	7	
Beans	36929	4		0	4		36930	0	
Maize or Indian Corn	252363	5		..			252363	5	
Buck Wheat	210	4		..			210	4	
Beer or Bigg	..			..			..		
Total of Corn and Grain	1024941	4		5957	6		1030899	2	
	cwts.	qr.	lb.	cwts.	qr.	lb.	cwts.	qr.	lb.
Wheat Meal and Flour	177204	0	0	2631	0	0	179835	3	0
Barley Meal	18	1	0	..			18	1	0
Oat Meal	1040	3	7	178	2	0	1219	1	7
Rye Meal	443	3	7	..			443	3	7
Pea Meal	2	3	7	..			2	3	7
Bean Meal	6	0	0	..			6	0	0
Indian Meal	254	3	26	..			254	3	26
Buck Wheat Meal	2	0	0	..			2	0	0
Total of Meal and Flour	178972	2	19	2810	1	0	181782	3	19

PRICES OF SEEDS.

BRITISH SEEDS.

Trefoil, new .... 19s. to 21s.
Tares, Winter, new, per bushel .... 13s. to 14s.
Mustardseed, per bush., new 12s. to 14s., brown 10s. to 12s.
Coriander, per cwt. .... 14s. to 16s.
Canary, per qr. .... 76s. to 80s.
Linseed, per qr., sowing —s. to 68s....crushing 60s. to 64s.
Linseed Cakes, per ton.............. £9 10s. to £10 10s.
Rapeseed, per qr. .... 68s. to 72s.
Rape Cake, per ton...................£5 10s. to £6 0s.

FOREIGN SEEDS, &c.

Cloverseed, red —s. to 52s.,.......... white 70s. to 85s.
Trefoil, ... 17s. to 18s.
Hempseed, small, 33s. per qr. .... Dutch —s. to 38s.
Coriander, per cwt. .... 16s. to 18s.
Carraway ,, ... 42s. to —s.
Linseed, per qr., Baltic 56s. to 58s....Bombay 60s. to 62s.
Linseed Cake, per ton.................. £9 10s. to £11 0s.
Rapeseed, Dutch.............................. 62s. to 66s.
Rape Cake, per ton.................... £5 0s. to £6 0s.

HOP MARKET.

BOROUGH, Monday, Nov. 22.—Our market continues tolerably firm, with a moderate business doing in fine and middling qualities. Brown and inferior descriptions are still neglected, and are only saleable at reduced prices. Our currency is as follows:—

Mid and East Kents	70s.	84s.	120s.
Weald of Kents	52s.	62s.	68s.
Sussex	46s.	54s.	60s.

Mease & Wild.

WORCESTER, (Saturday last.)—Prices are 2s. to 3s. higher to-day for fine and second class hops, both of which are scarce. It is in contemplation here to memorialize the Chancellor, that in case a moiety of the duty is remitted upon the present year's crop of hops the same shall extend to the stocks on hand held by the merchants and others, seeing that they have paid the duty upon the hops which the planters have not. The remission of the import duty was made to serve the brewers in 1854, and it will be too bad to remit the excise duty in 1858 to serve the planters, and both at the expense of the merchants and holders of hops.

ANDOVER HOP FAIR.—It was computed nearly 1,000 pockets were for sale, and not a fourth of that quantity found purchasers. Prices as follows:—Best Farnhams, from £5 to £5 15s. ordinary ditto, £4 15s. to £5 5s.; Altons, £4 10s. to £4 15s.; common Sussex and country hops, best quality, £3 10s. to £4; Sussex ditto, £3 to £3 15s,: Yearling hops, £2 to £3 per cwt.

POTATO MARKETS.

SOUTHWARK WATERSIDE, Nov. 22.—Since our last report the arrivals both coastwise and from foreign ports have been very moderate. Notwithstanding the severe weather we have had, the trade has been very languid, and prices have been with difficulty maintained. The following are this day's quotations:

York Regents .... per ton	80s. to 95s.
Dunbar do.	80s. to 90s.
Essex and Kent do.	70s. to 90s.
Scotch do.	70s. to 80s.
French Whites	60s. to 65s.
Belgian Whites	60s. to 00s.
Ditto Reds	70s. to 75s.
Dutch whites	65s. to 70s.

BOROUGH AND SPITALFIELDS, Nov. 22.—Coastwise and by land-carriage the arrival of potatoes, since this day se'nnight, have been tolerably good, and in fair condition. The imports have been 550 tons from Dunkirk, 620 do. from Rouen, 70 do. from Boulogne, 30 do. from Rotterdam, 256 do. from Antwerp, 140 do. from Harlingen, 85 do. from Groningen, and 50 do. from other quarters. Although a full average business is doing in most kinds, the trade is by no means active, as follows:—

York Regents	85s. to 95s. per Ton.
Kent and Essex do.....	80s. to 90s. ,,
Scotch	70s. to 90s. ,,
Foreign..............	60s. to 75s. ,,

COUNTRY POTATO MARKET.— York, Nov. 13: Potatoes sell at 6d. per peck, and 1s. 9d. to 1s. 10d. per bush. Leeds, Nov. 16: We had a fair supply of potatoes, which sold readily at 7½d. to 8d. per 21 lbs. wholesale, and 8d. to 9d. retail. Thirsk, Nov. 15: Potatoes 6d. per stone. Richmond, Nov. 13: Potatoes 2s. 4d. per bush. Sheffield, Nov. 16: Potatoes sell at 5s. 6d. to 6s. per load of 18 stones. Manchester, Nov. 18: Potatoes 7s. to 9s. per 252 lbs.

PRICES OF BUTTER, CHEESE, HAMS, &c.

BUTTER, per cwt.:	s.	s.
Friesland	120 to	122
Kiel	114	120
Dorset	116	120
Carlow	100	110
Waterford	102	110
Cork,	98	110
Limerick	96	104
Sligo	94	110
Fresh, per dozen..13s. 0d. to 16s. 0d.		

CHEESE, per cwt.:	s.	s.
Cheshire	60	74
Cheddar	60	80
Double Glouc.	52	68
HAMS:		
York	90	100
Westmoreland	90	100
Irish, new	80	94
BACON: Wiltshire, dried	56	60
Irish, green	50	54

ENGLISH BUTTER MARKET.

LONDON, Monday, Nov. 22.—Our trade is much the same as for some weeks past, viz., best butter being in fair demand at late rates, but inferior qualities are neglected, and are lower in price.

Dorset, fine	122s. to 124s. per cwt.
Ditto, middling	96s. to 100s. ,,
Devon	112s. to 114s. ,,
Fresh	12s. to 16s. per dozen.

BELFAST, (Thursday last.)—Butter: Shipping price, 98s. to 108s. per cwt.; firkins and crocks, 10d. to 11d. per lb. Bacon, 50s. to 54s.; Hams, prime 76s. to 80s., second quality 60s. to 66s. per cwt. Prime mess Pork, 80s. per brl.; Beef, 120s. to 130s. per tierce; Irish Lard, in bladders, 66s. to 70s.; kegs or firkins, 60s. to 64s. per cwt. Pork, 42s. to 46s. per 120 lbs.

ANDOVER CHEESE FAIR.—There was a large quantity of Wilts, Somerset, and Dorset, single and double, nearly 200 tons; prices about the same as at Weyhill.

Some fine Double Cheddar or Somerset, from 70s. to 80s.; good Gloucesters, 65s. to 74s.; best Wilts, 60s. to 70s.; thin cheese, 40s. to 50s. per cwt.

BISHOPSTOKE CHEESE FAIR, (Thursday last.)—The supply of cheese was very large, the trade very dull, and about half of the cheese was left unsold.

CHIPPENHAM MONTHLY CHEESE MARKET was well supplied. Trade in the early part of the morning was dull, but afterwards a good clearance was effected at the following prices :—Broad doubles 50s. to 62s., prime Cheddar 66s. to 70s., thin 44s. to 56s., loaves 65s. to 70s., skim 24s. to 28s. per cwt..

GLASGOW CHEESE MARKET was dull. Five tons passed the weigh-house scales, and five carts were shown in the market. New 42s. to 45s., skim 21s. to 23s. 6d. per cwt.

GLOUCESTER CHEESE MARKET.—The supply was small for the season (about 70 or 80 tons), notwithstanding which trade was dull and prices lower, namely, loaves and thick from 66s. to 70s., broad doubles 60s. to 64s., best singles 54s. to 56s., seconds 42s. to 52s., skim 20s. to 30s. per cwt. Several lots, principally of inferior descriptions, left the market unsold.

SALISBURY MONTHLY CHEESE MARKET.—There was a large quantity of Cheese, but very few buyers present; consequently the sale was dull : still factors did not seem inclined to give way in prices to any extent. Owing to the abundant supplies for the last two markets, the trade has been pretty fully stocked, and from the quantity of Cheese brought out at the present time, it is evident the make this year is considerably larger than the last.

COVENT GARDEN MARKET.

LONDON, SATURDAY, Nov. 20.—Little alteration has taken place since our last report. Apples and Pears continue plentiful. Among the latter are still some fine samples of Marie Louise, Duchesse d'Angoulême, Crassane, and Guernsey Chaumontels. The last fetch from 3s. to 6s, per dozen. Lisbon Grapes yet arrive in excellent condition, and hothouse kinds are also abundant. Pineapples are very plentiful. Barcelona Nuts fetch 20s. per bushel ; new Brazils 16s. do.; Spanish, 4s. do.; Almonds, 24s.; Walnuts kiln-dried 20s. do. Filberts fetch 26s. to 35s. per 100lbs. Kent Cob are dearer, and the demand brisk ; prices higher. New Oranges have arrived from Madeira and elsewhere. Among Vegetables are some nice Cauliflowers. Greens are plentiful. French Beans scarce. Potatoes realise a trifling advance on last week's prices ; Artichokes fetch from 4s. to 6s. per dozen. Cucumbers plentiful. Cut flowers chiefly consist of Orchids, Gardenias, Heliotropes, Geraniums, Violets, Mignonette, Heaths, and Roses.

FRUIT.

	s.	d.	s.	d.		s.	d.	s.	d.
Apricots, per doz.......	0	0 to	0	0	Pineapples, per lb....	3	0 to	6	0
Apples, per bushel....	2	0	5	0	Currants black, p. ½-s.	0	0	0	0
Oranges, per doz.	1	0	1	6	Do. red...............	0	0	0	0
Melons, each	1	0	2	0	**Lemons, per dozen ....**	1	0	1	6
Filberts, per lb.	0	6	0	0	Pears, per dozen	0	6	2	0
Cobs per lb.	0	6	0	8	Do. stewing per ½-sive	2	6	5	0
Grapes, per lb.........	1	0	4	0	Peaches, per dozen	0	0	0	0
Nectarines, per dozen..	0	0	0	0	Figs, per doz...........	0	0	0	0

VEGETABLES.

	s.	d.	s.	d.		s.	d.	s.	d.
Cauliflowers each.......	0	4 to	0	6	**Tomatoes, per half-sieve**	0	0 to	0	0
Broccoli, per bundle....	0	0	0	0	Leeks, per bunch	0	2	0	3
Greens, per doz. bunches	2	0	3	0	**Celery, per bundle.......**	1	0	1	6
Seakale, per punnet	0	0	0	0	Shallots, per lb.	0	6	0	8
French Beans, per sive..	0	0	0	6	Garlic, per lb............	0	6	0	8
Asparagus, per bundle ..	0	0	0	0	Lettuce, cab., per score..	1	0	1	6
Rhubarb, per bundle....	0	0	0	0	Do., Cos, per score ...	1	0	1	6
Potatoes, per ton	50	0	90	0	Endive, per score	1	0	1	6
Do. per bush...........	2	0	2	9	Radishes, turnp, per doz.	0	0	0	0
Do. per cwt.	4	0	6	0	Horseradish, per bundle.	1	6	4	0
Artichokes, per doz.	4	0	6	0	Mushrooms, per pottle..	2	0	2	6
Carrots, per bunch......	0	2	0	4	Parsley, per 12 bunches.	2	0	4	0
Turnips, per bunch	0	4	0	6	Basil, green, per bunch..	0	0	0	0
Spinach, per sieve	1	6	2	0	Marjoram, per bunch ...	0	0	0	0
Cucumbers, per dozen ..	1	0	4	0	Savory, per bunch	0	2	0	4
Beet, per dozen	1	6	2	0	Mint, green, per bunch..	0	2	0	4

CHICORY.

LONDON, SATURDAY, Nov. 20.—Since our last report, all kinds of Chicory have met a dull inquiry ; and in some instances prices have had a drooping tendency.

	£	s.	£	s.		£	s.	£	s.
ENGLISH, per ton	£10	10 to	£11	0	ANTWERP	£ 9	10 to	£10	5
HARLINGEN....	9	10	10	0	DACKUM........	0	0	0	0
BRUGES	10	0	11	0	GUERNSEY	10	0	0	0
HAMBURG	0	0	0	0	BELGIUM........	9	15	11	5

BREAD.

LONDON, SATURDAY, Nov. 20.—The prices of wheaten Bread in the metropolis are—

WHEATEN BREAD, per 4lbs. Loaf............	6d.	to 7d.
HOUSEHOLD DO. ,, ...	4½d.	6d.

WINES.

LONDON, FRIDAY, Nov. 19.—Wines are unaltered since our last report. The demand for white Capes having exhausted stocks in first hands, holders are now asking higher rates.

	£	£		£	£
Port, very super. old, pr, pipe	55	65	Clarets—*(continued.)*		
Good old....................	45	50	Other qualities, per hhd....	16	25
Good young	36	40	Cargo.........................	9	12
Common and fair	30	34	Hermitage, rd. & wh., 1st grth.	40	44
1853's and 1854's	45	50	2nd quality.................	14	16
Red Wines, from Oporto	20	26	Masdeu, per pipe	28	32
Lisbon White dry	36	38	French Red	12	15
Red	28	32	Champagne, 1st qual., pr. doz.	44s	50s
Do. old	—	—	Other qualities	20s	30s
Bucellas	36	44	Sauterne } 1st quality.........	44s	54s
Carcavellos..................	38	42	Barsac } other qualities....	22s	34s
Figuera	—	—	Hock, superior, per aum.....	£35	£50
erry, very superior, p. butt	70	80	Other qualities.............	10	30
1st class	50	60	Moselle, 1st quality...........	20	25
2nd and 3rd do.............	40	47	2nd quality	10	16
Fair useable qualities......	34	38	Madeira, E.I., 1st qual., p. pipe	80	95
Common'....................	20	28	West India, 1st quality	75	85
Mountain, London Particular, per pipe	—	—	Direct	60	65
2nd quality.....	25	30	Sicilian Red	12	13
Lower do....................	20	22	Marsala	23	24
Spanish, red, good	14	18	Cape White, good	16	17
Common and fair, per tun..	16	25	Ordinary and common	14	15
Clarets, 1st growths, 54's, per hhd.	60	65	Cape Red, good and ordinary	22	23
2nd do.......................	35	50	Teneriffe, London Particular.	40	42
			Unenumerated Red..........	—	—

MATTHEW CLARK & SONS.

SPIRITS.

LONDON, SATURDAY, Nov. 20.—For most kinds of Rum, the demand has fallen off, and prices have not been supported. Proof leewards, 1s. 7d. to 1s. 9d., East India, 1s. 8d. per gallon. Brandy is held firmly, on former terms. Plain German spirit is selling at 1s. 2d., and Geneva 2s. 2d. to 3s. 6d. per gallon. English spirit is firm in price.

RUM.

	s.	d.	s.	d.		s.	d.	s.	d.
E. India, proof per gal.	1	7 to	1	8	Jamaica . 26 to 29 O.P.	4	3 to	4	4
Leewards, do.........	1	7	1	9	,, 32 36 ,,	4	6	4	8
,, 10 to 20 O.P.	2	2	3	0	Better qualities } 32 36 ,,	4	4	4	9
,, 21 29 ,,	3	8	3	10					
Demerara 30 34 ,,	3	8	4	2	Superior Marks } 36 40 ,,	5	3	6	0
,, 34 40 ,,	4	2	4	4					

BRANDY—COGNAC.

Vintage	Shipped by Martell.				Shipped by Hennessy.				Shipped by Otard.				Shipped by Viny. Proprietors' Company.			
	s.	d.	s.	d.	s.	d.	s.	d.	s.	d.	s.	d.	s.	d.	s.	d.
1854....	14	0	14	8	14	0	14	6	0	0	0	0	0	0	0	0
1855....	12	6	13	0	12	6	13	0	0	0	0	0	0	0	0	0

Hhds. 2d. per gallon higher. Puncheons scarce.

	s.	d.	s.	d.
Other Shippers....................................	6	6 to	12	6
HOLLANDS, Geneva fine, for duty	3	8	4	0
Other qualities, to arrive and on the quay	3	2	4	0
BRITISH GIN, for exportation, proof............ hhds	3	10	4	0

BRITISH SPIRITS.

	s.	d.	s.	d.
GIN, proof, cash	10	0	0	0

HAY MARKETS.

SATURDAY, Nov. 20 — SMITHFIELD.—Supplies good, and trade dull, at barely stationary prices.

CUMBERLAND.—A slow inquiry.

WHITECHAPEL.—Both Hay and Straw were in slow request, at our quotations.

At per Load of 36 Trusses.

	SMITHFIELD.		CUMBERLAND.		WHITECHAPEL	
MEADOW HAY	60s. to	90s.	60s. to	90s.	60s. to	90s.
CLOVER DITTO OLD	75s.	105s.	75s.	105s.	75s.	105s.
STRAW	25s.	30s.	26s.	30s.	27s.	32s.

OIL MARKET.

OILS.

	£	s.	d.	£	s.	d.
Olive, Florence, half-chests ... }	£0	19	0 to	£0	0	0
Lucca...........	6	5	0	0	0	0
Gallipoli (252 gals)	49	0	0	49	10	0
Spanish..........	46	10	0	47	0	0
Linseed (cwt.)....	1	8	6	0	0	0
Rape, Pale	2	6	0	2	6	6
Brown..........	2	2	6	2	3	6
Cod (tun)	31	0	0	0	0	0
Seal, Pale........	37	0	0	0	0	0
Do. Brown, Yel. &c	30	0	0	35	0	0
Sperm	82	0	0	85	0	0
Head Matter......	87	0	0	90	10	0
Southern.........	34	0	0	34	10	0
Cocoa-nut (cwt.) .	1	18	0	2	1	0
Palm	1	12	0	2	1	6

RESIN.

	£	s.	d.	£	s.	d.
Yellow (per cwt.)	£0	6	0	0	6	6
Transparent......	0	6	0	0	6	6

PITCH.

	£	s.	d.	£	s.	d.
British (per cwt.)	£0	6	6	0	0	0
Archangel........	0	0	0	0	0	0
Stockholm	0	10	0	0	0	0

TURPENTINE.

	£	s.	d.	£	s.	d.
Spirits (per cwt.)	£2	0	0	0	0	0
In Puncheons....	2	1	0	0	0	0
Rough............	0	10	6	0	0	0

TAR.

	£	s.	d.	£	s.	d.
American	£0	0	0	0	0	0
Archangel........	0	0	0	0	16	0
Stockholm	0	0	0	0	15	0

WHALEBONE.

	£	s.	£	s.
Greenland, full size (per ton). }	£450	0	550	0 0
South Sea	410	0	0	0 0

FLAX, HEMP, COIR, &c.

LONDON, SATURDAY, Nov. 20.—The transactions in Flax continue on a very moderate scale ; nevertheless, prices are well supported. In Hemp very little is doing, and the quotations have a drooping tendency. Jute has fallen fully 20s. per ton ; and Coir goods are extremely inactive.

LEADENHALL LEATHER MARKET

LONDON, SATURDAY, Nov. 20.—The demand for nearly all kinds of Leather, the fresh supplies of which continue limited, is somewhat active, at fully last week's quotations.

CROP HIDES.

ENGLISH

lbs.	lbs.		d.	d.
28 to	35	....	14 to	16
36	40	....	15	17
40	45	....	16	18½
46	50	....	17	19½
50	55	....	17	20
56	60	....	18	21

BUTTS.

ENGLISH.

lbs.	lbs.		d.	d.
14	16	....	16	18
17	20	....	16	19
21	24	....	18	20
25	28	....	19	22
29	32	....	20	24
33	36	....	20	23

FOREIGN.

lbs.	lbs.		d.	d.
14	16	....	—	—
16	20	....	16	18
21	24	....	16	18
25	28	....	15	19
29	32	....	16	19
33	36	....	16	19
36	45	....	14½	23
45	50	....	16	24

OFFAL.

	d.	d.
English Shoulders	13	17
Do. Cheeks and Faces	6	10
Do. Bellies	9	11½
Do. Middles	12	13
Foreign Shoulders	13	15
Do. Necks	10	12
Do. Bellies	8	10
Do. Middles do.	11	12
Dressing Hide Shoulders.	10	12
Do. do. Bellies...	9	10
Kip Shoulders............	6	8
Do. Bellies	6	7

DRESSING HIDES.

	lbs.	lbs.	d.	d.
Common	20 to	24 ..	14 to	16
Do.	25	28 ..	14	16
Do.	30	34 ..	14	16½
Do.	35	40 ..	15	17
Saddlers	30	35 ..	16	18
Do.	36	50 ..	17	19
Bulls			11	13
Shaved	14	16 ..	18	19
Do.	17	19 ..	17	19
Do.	20	23 ..	16	18½
Do.	24	28 ..	16	18
Scotch do.	16	24 ..	16	19
Coach, per Hide........			30s. to	35s.

HORSE BUTTS. SHAVED.

	d.	d.	d.	d.
English	10 to	11 ..	14 to	15
Spanish	10	11 ..	14	15

HORSE HIDES.

	lbs.	lbs.	d.	d.
English	13 to	18..	11 to	14
Do. without butts	9	14..	12	15
			s. d.	s. d.
Spanish salted, without butts, per hide.	6	9..	11 6	14 6
Do. do. do.	9	12..	12 6	16 0
Do. do. do. inferior..			7 0	9 5
Do. dry do.	6	8..	8 6	11 0
Do. do. do.	9	11..	11 0	14 6
Do. do. do. inferior..			5 0	7 0

CALF SKINS.

Av. weight.		Unrounded.			Rounded	
lbs.	lbs.	d.	d.		d.	d.
20 to	28	14 to	16	....	17 to	23
30	35	15	17	....	17	24
35	40	15	18	....	17	25
40	45	16	18	....	17	26
45	50	16	18	....	17	26
50	55	15	17	....	17	25
55	60	15	17	....	16	24
60	70	15	17	....	16	23
70	80	14	16	....	16	22
80	90	14	16	....	15	22
90	100	14	16	....	15	21
100	120	13	15	....	14	19

KIPS.

	lbs.	lbs.	d.	d
Petersburgh ..	4	to 7	19 to	21
Do. ..	7	9	17	21
Do. ..	9	10	16	20
Do. ..	11	13	16	19
E.Ind.dry sltd.	5	7 ...	19	24
Do. do.	7	9 ...	18	21
Do. seconds..........			15	18
Do. thirds............			12	14
Do. inferior			8	10

SUNDRIES.

	s.	s.
Hog Skins, best ......each	12 to	19
Do. seconds... ,,	7	12
Seal Skins, split, per doz. .	46	66
Do. for bindings ,,	34	66
Calf Skins, Sumach-tanned .... ,,	30	45
Do. white ...... ,,	25	35
Horse Hides, white, each..	8	13
Sheep Skins—	d.	d.
Basils, unstrained, per lb.	8	14½
Do. strained ,,	8	15
Do. facing, per doz. ...	5s.	16s.
Tan, Sheep, & Lambs ,,	10	16
White Sheep, per 120 ...	50	90
Do. Lambs, ,, ..	40	80
Do. Sheep & Lambs, strained, per doz.	5	14
Sumach Roans, per doz.	16	30
Do. Skivers, ,,	8	15
Bark Skivers, ,,	7	14
Hide Splits, per lb.	9 to	11d.

HIDE AND SKIN MARKETS.

LONDON, SATURDAY, Nov. 20.

	s. d.	s. d.
MARKET HIDES :		
56 to 64lbs......per lb.	0 3¼ to	0 3¾
64 to 72lbs	0 3¾	0 4
72 to 80lbs............	0 4	0 4½
80 to 88lbs............	0 4½	0 5
88 to 96lbs............	0 5	0 5½
96 to 104 lbs..........	0 5½	0 6
104 to 112lbs..........	0 6	0 6½

	s. d.	s. d.
HORSE HIDES, each	9 0 to	10 0
CALF SKINS, light .	2 6	4 0
Do. full	6 6	7 0
Shearling	0 0	0 0
Half-bred Sheep......	6 0	7 6
Downs	4 3	5 9
Polled Sheep	7 9	9 6
Lambs	0 0	9 0

BARK, &c.

LONDON, SATURDAY, Nov. 20.

	£ s.	£ s.
English, per load of 45 cwt., del. in London	17 0 to	20 0
Coppice	18 0	21 0
Dutch, per ton	5 5	5 10
Hambro'................	4 10	5 10
Antwerp Tree	5 10	7 0
Do. Coppice	6 0	8 0
Mimosa, Chopped	8 10	9 10
Do. Ground	10 0	10 10
Do. Long	6 0	8 0

	£ s.	£ s.
Cork Tree, Barbary ...	7 0	7 10
Do. Leghorn	6 0	7 0
Valonia, Smyrna, p. ton	16 0	17 0
Do. Camata..........	16 0	17 0
Do. Morea	10 0	12 0
Terra Japonica Gambier...	15 0	15 15
Terra Japonica Cutch......	32 0	34 0
Divi Divi................	9 0	10 0
Myrabolams	7 0	10 0
Sumach, Sicily, p. cwt.	0 13	0 15

TIMBER.

Per load—	£ s.	£ s.
Quebec, red pine	3 10 to	4 10
Yel. Pine	3 10	4 5
Quebec Oak, White...	6 0	6 5
,, Birch........	4 0	4 15
,, Elm..........	4 10	5 10
Dantzic Oak..........	4 0	6 0
Memel Fir............	3 10	4 5
Swedish.............	2 10	3 0
Masts, Qubc. Red Pine	6 5	6 10
Do. Yellow Pine....	5 0	6 10
Lathwood, Dantzic fm	8 0	9 10
Do. Memel	10 0	11 0
Do. Quebec	5 0	5 5
DEALS, per C. 12 ft. by 3 by 9 in.:		
Quebec Wh. Spruce.	9 0	11 5
Do. Red Pine	11 10	17 0
St. John Wh. Srpuce	11 11	15 0

	£ s.	£ s.
DEALS, Yel. Pine, per reduced C.:		
Canada, 1st quality.	15 0 to	16 5
Do. 2nd do.	10 0	11 3
Archangel Yellow..	16 0	16 5
Memel	13 0	14 3
Gothenburg Yellow.	13 0	14 0
Do. White.........	11 0	12 0
Gefle Yellow, 14 ft..	30 0	0 0
Christiania, per C. 12 ft. by 3 by 9 in.:		
Yellow..............	24 0	28 0
White...............	19 0	24 0
Deck Plank, Dantzic, per 40 ft. by 3 in....	1 0	1 10
Staves, per Standard M.:		
Quebec Pipe........	75 0	0 0
Do. Puncheon....	20 0	23 0
Baltic Crown Pipe.	140 0	145 6

METALS.

LONDON SATURDAY, Nov. 20.—The transactions in Scotch pig iron have been only moderate, at 53s. to 53s. 3d. cash. Manufactured qualities sell steadily, at fully last week's prices. Copper is quite as dear as last week; but Lead commands very little attention. Tin is rather dearer, Banca having sold at 123s., and Straits 121s. to 122s. Tin plates are steady. Other metals rule about stationary.

PRICES CURRENT, DUTY PAID, UNLESS OTHERWISE STATED.

ENGLISH IRON.

Bar and Bolt *a* ......per ton	£7 0 0
In Wales *a*	6 0 0
In Liverpool *a*	8 0 0
In Staffordshire *a*.........	9 5 0
*Sheets, single *a*	£ 9 0 0— 9 10 0
* Do. double *a*	10 10 0
*Hoop *a*	£8 15 0—9 0 0
*Nail rod, round *a*	£7 10 0—8 0 0
Do. square *a*	8 10 0
Rails, Wales, *c* ...	£6 2 6—6 5 0
Do. Staffordshire *c*.	£7 15—0 0 0
Railway Chairs, Clyde	4 0 0
Pig, No. 1, Clyde *c*	£2 14 6—0 0 0
3-5ths No. 1 & 2-5ths No. 3	3 10 0
No. 1, in Wales *b*.........	4 0 0
Scotch Pig, No. 1, in Lond.	3 16 0
Stirling's Non-laminating or Hardened Surface Rails..................	£9—9 2 0
Coal-blast, No. 1 Foun.....	6 10 0
Charcoal bars	14 10 0
Stirling's Patent toughened Pigs, in Glasgow.........	3 10 6
Do. in Wales............	£4—4 5 0

FOREIGN IRON *a*.

Swedish	£12 10 0—13 10 0
Russian CCND	14 10 0
Ind. Ch. Pigs in London ..	6 0 0

FOREIGN STEEL *a*.

Swedish keg, nom	£18 0 0—19 0 0

ZINC.

In sheets *d*	£29 0 0— 0 0 0

SPELTER *c*.

On the spot	£ 0 0 0—22 10 0
To arrive	23 0 0

ENGLISH COPPER.

Tile, 14 to 28lbs. *a*	98 0 0
Tough Cake *a*	98 0 0
Sheath and Bolts *a*..per lb.	0 0 0
Sheet *a*	0 0 11
Bottoms *a*	0 0 11
Yellow Metal *a*	0 0 0
Wetterstedt's Patent Metal† per cwt..........	2 0 0

ENGLISH LEAD *a*.

Pig, per ton....	£21 0 0— 0 0 0
Sheet	£22 5 0— 0 0 0

FOREIGN LEAD *a*.

Spanish in bond, p. ton	£20 0-20 15

ENGLISH TIN *e*.

Block, per ton	£111 0 0—112 0 0
Bar ....£	0 0 0—112 0 0

FOREIGN TIN *c*.

Banca	£123 0 0— 0 0 0
Straits (uncert.)	£121 0 0—122 0 0

TIN PLATES *b*.

IC Charcoal, per box	£1 12—1 13 0
IX do	£1 18 0—1 19 0
IC Coke	£1 5 6—1 6 0
IX do	1 11 0—1 12 0
Canada Plates......per ton	14 10 0
QCKSILVER *f*..per lb.	1s. 11d.—2s

TERMS.—*a*, 2½ per cent. dis.; *b*, 3 ditto; *c*, nett; *d*, 1½ per cent. dis.; *e*. ditto; *f*, 1½ ditto. Delivered in Liverpool, 10s. per ton less.

* Cold blast, f.o.b. in Wales.

† Discount for cash in fourteen days, 5 per cent.

WOOL MARKETS.

ENGLISH WOOL MARKET.

BERMONDSEY, Nov. 20.—There has been a large amount of business transacted both in fleece and skin wool at a considerable advance in price. The quantity on hand is much less than has been known at this season of the year for a very long period, as the farmers have generally sold, and also the dealers, who have been acting in the most cautious manner, fearing to hold stocks at late rates. The advance has been brought on by a consumptive demand; and should this continue, it is expected that considerably higher rates must be paid before long, as the general trade of this country is healthy, and more likely to progress than otherwise.

ANOTHER REPORT.

CITY, MONDAY, Nov. 22.—Holders of all kinds of home-grown wools continue to exhibit great firmness, and most of them refuse to sell either long or short qualities, except at an advance in the quotations of fully 1d. per lb. The supply on offer is very moderate; and the advices from the manufacturing districts are highly favourable to the article.

Per pack of 240lbs.

	£ s.	£ s.
Fleeces—Southdown Hogs............	£18 0 to	£19 0
Do. Half-bred Hogs	17 10	18 0
Do. Kent	17 0	17 10
Do. Southdown Ewes and Wethers	15 10	16 0
Do. Leicester do.	14 10	15 10
Sorts—Clothing, picklock	17 10	18 10
Do. Prime and picklock	17 0	17 10
Do. Choice.........................	16 0	17 0
Do. Super..........................	14 0	15 0
Do. Combing—Wether matching ...	18 10	19 10
Do. Picklock	16 10	17 10
Do. Common	14 0	15 0
Do. Hog matching	21 0	22 0
Do. Picklock matching............	17 0	18 0
Do. Super do.	14 10	15 10

BRADFORD WOOL MARKET, (Thursday last)—There has been decidedly less doing in wool during the week. Spinners are generally in good supply, and the present high rates offer no inducement for speculative purchases. In noils and shorts there is no change either in demand or prices. Yarns: The spinners continue to be well engaged to order, but many have a profitless trade till their previous contracts are completed. The present prices of yarns are not in accordance with present prices of wool, and a further rise in yarns seems inevitable if the demand continues. Pieces: The business of the day is a full average one for several weeks past. Stocks of all kinds are exceedingly limited. Prices are a little in favour of manufacturers, especially where orders have to be given.—*Bradford Observer.*

LEEDS (ENGLISH AND FOREIGN) WOOL MARKET, Nov. 19.—Upon the whole, the transactions in English wool have not been extensive, and prices are about the same as last week. There is a fair demand for colonial, but it is somewhat difficult to get a proportionate advance to that obtained at the public sales, which is fully maintained during the current week.

LIVERPOOL, NOVEMBER 20.

SCOTCH WOOL.—There has been a considerable business doing in laid Highland; the demand has been freely met by the holders, and nothing has been established, so far, above our highest quotations. White is not so much inquired for, but stocks of this article are light. There have been some large sales of good clean Cheviot, as well as crossed, and holders are now asking rather more money.

	s.	d.		s.	d.
Laid Highland Wool per 24lbs	11	0	to	12	6
White Highland do	14	0		16	6
Laid Crossed do..unwashed	13	6		14	6
Do. do..washed	14	0		15	6
Laid Cheviot do..unwashed	15	0		16	0
Do. do..washed	16	6		19	6
White Cheviot do..washed	27	9		34	0

FOREIGN WOOL. — The sales continue to progress very favourably in London, and everything tends to increased confidence in present prices, and there is a good demand by private contract at rates in favour of the seller.

FOREIGN AND COLONIAL WOOL MARKET.

	Per lb.	s.	d.		s.	d.
German, Saxon, and Prussian.	1st and 2nd Elect	3	4	to	4	6
	Prima	2	4		3	0
	Secunda	2	0		2	4
	Tertia	1	8		1	10
COLONIAL:—SYDNEY—	Lambs	1	5½		2	1½
	Scoured do.	1	4½		2	8
	Unwashed	0	9½		1	6
	Locks and Pieces	0	10		1	9
	Slipe and Skin	1	4		1	9
PORT PHILIP—	Lambs	1	4		2	1
	Scoured do.	1	2½		2	3½
	Unwashed	0	6		1	0½
	Locks and Pieces	1	1		1	7½
	Slipe and Skin	0	8½		1	6½
S. AUSTRALIAN—	Lambs	1	4		1	9
	Scoured do.	1	3		2	2
	Unwashed	0	9		0	11
	Locks and Pieces	0	7		1	2
V. D. LAND—	Lambs	1	5½		1	11
	Scoured do.	1	5		2	8
	Unwashed	1	1½		1	3
	Locks and Pieces	1	0		1	6
CAPE OF GOOD HOPE—	Fleeces	0	11		2	0
	Lambs	0	11		1	10
	Scoured	0	8		1	10
	Unwashed	0	7½		1	0

CITY, MONDAY, Nov. 22.—The public sales of foreign and colonial wool have, during the past week, been well attended, and the competition for the fine sorts, although not quite so animated as at the opening, still continues active. Prices for most descriptions have been well maintained, more particularly for Sydney and Moreton Bay wools.

BRESLAU WOOL REPORT, Nov. 18.—Business during the last fortnight has been exceedingly brisk, and prices, owing to the satisfactory result of the current London sales 3 to 5 per cent. higher than last month. Sales were on a very extensive scale, amounting to nearly 5,000 cwts., and consisting of almost all descriptions. The chief demand continued for Russian fleeces, combing and clothing wools, at from 60 to 68 thalers per cwt., ditto scoured 85 to 95, Polish and Posen one-shearing 72 to 82, ditto refuse 66 to 68, Silesian slipes 56 to 66, Silesian fleeces, super select 105 to 110, ditto locks 80 to 82. Lambs were comparatively neglected, but provisions of this article not very abundant. The chief purchasers were the combers and wholesale buyers of the Zollverein, a Switzerland and a Hamburgh firm, as well as French, Belgian, Berlin, and home commissioners. There were only the English, who, owing to the continuation of the London sales, did not take any active part in the universal activity exhibited in our place.—GUNSBURG, Wool-broker.

MANURES.

PRICES CURRENT OF GUANO, &c.

PERUVIAN GUANO, (per ton, for 30 tons) nominal	£12 0 0	to	£0 0 0
Do. Do. (under 30 tons)	13 5 0		0 0 0
BOLIVAN GUANO	none 0 0 0		0 0 0

ARTIFICIAL MANURES, &c.

Nitrate Soda (per ton)	£16 0 0	to	£18 0 0
Nitrate Potash or Saltpetre	29 0 0		30 0 0
Sulpht. Ammonia	14 10 0		15 10 0
Muriate ditto	25 0 0		27 0 0
Superphospht. of Lime	5 10 0		6 0 0
Soda Ash, or Alkali	11 0 0		12 0 0
Gypsum	1 10 0		2 0 0
Coprolite	3 5 0		3 10 0

	£ s d		£ s. d.
Sulph. of Copper or Roman Vitriol, for Wheat steep., 1st qual.	35 0 0	to	37 0 0
Ditto, 2nd quality	23 0 0		28 0 0
Salt	1 0 0		1 5 0
Bones, Dust, per qr.	1 1 0		1 2 0
Do. ½-inch	1 2 0		1 3 0
Oil Vitriol, concentrated, per lb.	0 0 1		0 0 0
Do. Brown	0 0 0¾		0 0 0

OIL-CAKES.

Linseed-cakes, per ton—			
Thin Americn, brls	£10 12 6		£10 15 0
Ditto bags	10 2 6		10 5 0
Thick do. round (none)			0 0 0
Marseilles	£9 10 0	to	£10 0 0
English	10 10 0		0 0 0
Rape-cakes, prton	6 0 0		6 10 0

JOHN KEEN, 35, Leadenhall-street,
(Late Odams, Pickford, and Keen.)

Agricultural Chemical Works, Stowmarket, Suffolk.

Prentice's Cereal Manure for Corn Crops	per ton	£8 10 0
Prentice's Turnip Manure	,,	7 0 0
Prentice's Superphosphate of Lime	,,	6 10 0

Manufactured by Hodgson & Simpson, Wakefield, and Matthews & Co., Driffield.

Nitro-Phosphate	per ton	£7 10 0
Ammonia-Phosphate	,,	8 0 0

Vitriol, Bone, and Manure Works, Howden Dyke, Howden.

Ammonia Phosphate	per ton	£8 10 0
Anderton's Turnip Manure	,,	8 0 0
Super-Phosphate of Lime	,,	7 0 0

LIVERPOOL GUANO AND SEED, &c. MARKET Nov. 19.—Of Guano the import has been 335 tons from Chinchas, 200 tons from Valparaiso, and 400 tons from the Kooria Mooria; the demand is moderate. Of Nitrate of Soda 1000 bags of common quality sold at 13s. 6d. to 14s. per cwt. Oil-cakes in more request.

SAMUEL DOWNES, General Broker,
Exchange Court, Liverpool.

Guano, Peruvian	£12 0 0	to	£0 0 0
Do. Upper do.	8 0 0		10 0 0
Ichaboe	5 0 0		6 0 0
Patagonian	4 0 0		7 0 0
Saldanha Bay	6 0 0		0 0 0
Kooria Mooria	5 0 0		8 0 0
Pedro Keys	4 0 0		6 0 0
Superphosphates	7 0 0		7 10 0
Bone Ash, 75 p. ct.	£5 10 0	to	£0 0 0
Linseed Cake—			
American	9 15 0		10 0 0
English	10 0 0		0 0 0
Cottonseed Cake	0 0 0		0 0 0
Do. Meal	5 0 0		5 10 0
Nitra. of Soda, p.ct.	0 14 0		0 16 0
Linsd. Bomby, p.qr.	2 13 0		0 0 0

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